

Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

Vol. V, No.1

February 1994

Business Operations Presents New Challenge to Business Integration Vendors

As IT becomes more integrated into the business environment, so the problems of managing business change involving IT increase. One strategy for addressing this issue is to transfer more of the responsibility for effecting change to vendors. Accordingly over the last two years, IS outsourcing has established itself as a major means of achieving systems renewal. For example, EDS and CSC have won a number of major contracts, such as those at KF and BHS where the primary focus of these contracts is new system development.

However the scope of these contracts extends beyond that of typical business integration contracts and includes outsourcing elements such as IT infrastructure management services and the permanent transfer of systems development personnel from the client to the vendor.

Thus an additional challenge has now presented itself to business integration vendors, namely business operations outsourcing.

Business operations outsourcing is arising out of the desire, evident in many organisations, to outsource entire business functions or processes.

Business integration vendors should consider developing business operations capability, since business operations:

- can be a direct substitute for business integration services
- is a rapidly growing opportunity.

A Substitute for Business Integration Services

The principal driving forces behind business operations outsourcing are shown in Exhibit 1.

Exhibit 1

Driving Forces Business Operations, Europe



Business operations outsourcing and systems integration are two approaches to meeting the need for business re-engineering. A principal driving force in both cases is the realisation that a business process requires re-engineering to improve its effectiveness dramatically.

If the business process is to remain in-house, then systems integration or applications operations can be used to support the re-engineering process. However, to increase the flexibility of the organisation to react to market changes, companies may decide to outsource the business process rather than re-engineer the process themselves. For example, BP Exploration wished to re-engineer its accounting function. However rather than re-engineer it themselves and just subcontract the redevelopment of the supporting IS systems, they decided to outsource the entire business process to a single, external vendor namely Andersen Consulting.

Examples of current business operations contracts which have been awarded to IT vendors are listed in Exhibit 2.

Exhibit 2

Examples of Business Operations Contracts

Contract	Vendor
Fulfilment for Time Life books and magazines	EDS
Parking Fine Collection for Seville Municipal Authority	EDS
Accounting for BP Exploration	Andersen Consulting

EDS' contract for parking fine administration in Seville is an example of a contract that includes significant immediate re-engineering and systems integration activity.

It is often argued that organisations will not outsource activities that are a part of their core business and provide them with competitive advantage. However, this appears to be a myth. Organisations are already outsourcing activities which are important sources of competitive advantage. For example, Vauxhall is reluctant to discuss the nature of its Customer Assistance Centre run by EDS, because this business operations contract is a source of competitive advantage. Since the centre was established, Vauxhall claims "a substantial rise in customer satisfaction as well as an increase in those prepared to recommend Vauxhall products."

Provided that the client retains the means of establishing policy and direction together with the means to monitor service delivery and manage the vendor, there are probably few activities

that cannot be effectively outsourced at the administrative or operational level. Many business operations contracts involve third parties liaising directly with the clients' customers and suppliers.

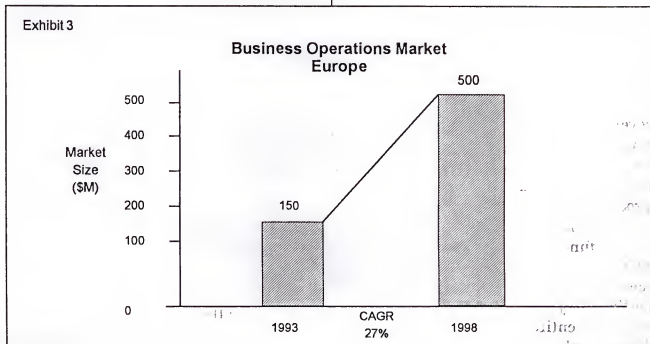
Indeed, EDS is targeting customer service functions with business operations services. This presents a significant threat to vendors such as Unisys who are targeting customer services applications from a business integration perspective.

Many traditional administrative functions, such as claims administration for an insurance company, are potential targets for business operations services. In this case, technologies such as workflow and document image processing could be immediately applied to transform the business process.

Alternatively business operations can be used to pre-empt future systems integration contracts. For example, EDS has a contract with Time Life to provide fulfilment services. At present, the process remains labour-intensive. However, EDS will endeavour to apply technology to the process to improve its efficiency. This will probably entail re-engineering the process and performing a systems integration project at some future date. In this way, EDS has effectively pre-empted the award of a systems integration project. The vendor has also avoided the price competition inherent in a competitive tender for such a project.

Growing at 27% Per Annum

Exhibit 3 provides a forecast for the business operations market in Europe.



Although considerably smaller than the business integration market, business operations outsourcing is now beginning to emerge as a significant opportunity.

Approximately one-third of this market value is accounted for by outsourcing within the public sector in the United Kingdom. In this segment of the market, the traditional systems integration IT outsourcing vendors are finding that they must now additionally offer business operations outsourcing or "managed services" in order to retain their presence in this market segment. This could also happen in time in the wider commercial marketplace posing a significant threat to IT outsourcing vendors and systems integration vendors. Accordingly it is important that vendors recognise the nature of the business operations opportunity and the threat to their current business activities from other vendors offering such services.

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Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

Vol. V, No. 2

February 1994

European Project Services Market Valued at \$41 billion

In 1993, INPUT's European Systems Integration Programme focused specifically on the systems integration market.

In 1994, we are expanding the scope of this programme to cover the whole of the project services market and renaming it the Business Integration Programme—Europe

The projects services market:

- Covers a wider range of services than systems integration
- Is eight times larger than the systems integration market
- Will be strongly driven by the adoption of software products
- Is being targeted by the equipment vendors.

Wider Range of Services

Systems integration projects provide complete solutions to information system requirements through the custom selection of

a variety of information systems products and services. For a project to qualify as a systems integration project, the client must appoint a single prime contractor responsible for overall project management and responsible for the delivery of the complete information system to the agreed schedule and price.

The project services market includes a wider range of services. Indeed it includes all project-related services excluding products purchased as off-the-shelf software products to be installed by the client or products and services purchased as part of an outsourcing contract.

Examples of services within the scope of the project services market are:

- Management consultancy as part of a business re-engineering project
- Strategic IS consulting services
- Technical consulting
- Implementation support

- Bespoke software development
- Education and training

Equipment and software product revenues are also included where these are purchased as an integral part of an information systems project. In those instances where software products and equipment are purchased separately, these elements are not included in the project services market covered by the European Business Integration programme.

Revenues for the services listed above are included within the systems integration market where these services are supplied within the context of a systems integration project.

However many project services are purchased outside this context, often as individual consulting assignments or support services. Historically, individual professional services have tended to be purchased on a time and materials basis.

While the systems integration market includes combinations of services bundled into an overall fixed price contract, the project services market also includes standalone services and services purchased on a time and materials basis.

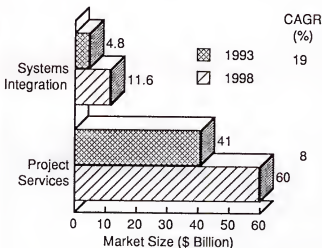
Eight Times Larger than Systems Integration Market

Exhibit 1 contrasts the size and growth of the European systems integration and project services markets.

The growth in the systems integration market has been considerably higher than that in the overall project services market in recent years, as major project expenditure has shifted from in-house developments to

Exhibit 1

Project Services and Systems Integration Markets, Europe



the external market. Indeed this same trend has served to reduce the growth elsewhere in the professional services market with in-house IT departments often no longer in a position to recruit large numbers of temporary development staff.

This overall trend is expected to continue. Similarly the trend to fixed price rather than time and materials is extending itself to smaller projects.

Exhibit 2 provides a breakdown of the project services market for France, Germany, and the United Kingdom.

The project services market in each of these countries is currently depressed by their economic circumstances. The market in France is the most adversely affected with users endeavoring to reduce their IT expenditure, and little sign of overall economic recovery. However new technologies, such as client/server that offer users the prospect of reducing their overall

IT expenditure while improving the value of IT to their business, provide some encouragement for growth in the project services market.

Driven by the Adoption of Software Products

Exhibit 3 provides a breakdown of the European project services market by component.

The European systems integration market is showing a shift from large bespoke development projects to projects based on client/server architecture and oriented around the assembly of standard software

This trend is mirrored in the overall project services market where the proportion of revenues derived from software products is forecast to grow substantially over the next five years.

Increased use of software products and kernels will help to meet users' needs for flexibility and immediacy of implementation.

The main implications of these trends for vendors is their need to focus skills:

- Around the leading application software products in their chosen sectors
- On the technical skills necessary to integrate these products into distributed, multi-vendor environments.

Strongly Targeted by the Equipment Vendors

Exhibit 4 lists the leading project services vendors in Europe.

Exhibit 2

Project Services by Country

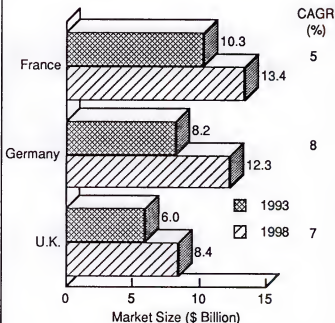
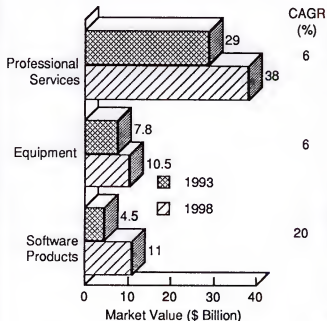


Exhibit 3

Project Services by Component, Europe



Overall the list of leading vendors in the project services market is very similar to that for the systems integration market.

However large project specialists such as Andersen Consulting and EDS receive lower rankings in the project services market.

On the other hand Siemens-Nixdorf and Olivetti, who had yet to establish themselves in the systems integration market in 1992, achieve higher rankings in the project services market.

As in the systems integration market, the equipment vendors are steadily increasing their presence in the project services market.

Exhibit 4

Leading Project Services Vendors—Europe, 1992

Vendor	European Project Services Revenues (\$ M)
IBM	2,300
Cap Gemini Sogeti	1,800
Siemens Nixdorf	1,100
Digital	1,100
Andersen Consulting	950
Olivetti	700
Sema Group	550
Finsiel	550
ICL	450
EDS	400
Bull	400
Unisys	300

Company Profile

A Publication from INPUT's Business Integration Programme – Europe

March 1994

Hewlett-Packard Establishes an International SAP Practice

HP is now offering consultancy services based around leading third-party application software products. HP became the first equipment vendor to offer application consulting for SAP's R/3 enterprise resource planning system. By January 1994, HP had established itself as one of SAP's leading partners and had received orders for SAP project services valued at \$15 million.

HP is planning to develop its current position as a major supplier of SAP R/3 services by:

- Targeting multinational organizations
- Acting as prime contractor for a comprehensive range of organizational and technological consultancy services to R/3 users internationally
- Extending its SAP services capability

Established as a Leading SAP Partner

HP's involvement with R/3 is summarized in Exhibit 1, which highlights the current

dominance of SAP installations within the German home market. However, SAP is now establishing a major presence outside Germany. SAP's international installed base grew rapidly in 1993, and international sales of the company's products continue to show much higher growth than those in Germany.

Exhibit 1

HP's Involvement with SAP R/3 January 1994

Category	Number
R/3 Installations World-wide	700
Installations on HP equipment	
- World-wide	300
- Germany	150
R/3 Projects undertaken by HP	
- World-wide	100

Source: SAP-HP Competence Centre

By January 1994, there were approximately 700 customer installations of R/3 world-wide. This figure excludes R/3 installations within SAP and its partners. Forty-four percent of these customer installations were implemented on HP equipment, making HP the leading supplier of equipment for running the R/3 application. Currently, SAP has appointed six hardware partners including IBM, Digital, SNI, Bull and Sun.

Targeting Multinational Organizations

With the introduction of R/3, SAP's partners are becoming more involved in advising and assisting organizations in implementing SAP's applications. Many of the initial customers for R/3 are medium-sized companies that could not justify their own mainframe to support R/2. However R/3 is also attractive to multinationals who favour a decentralized approach to enterprise resource planning systems rather than the centralized approach imposed by R/2.

HP's goal is to provide multinational organizations with co-ordinated, international R/3 project management and consulting services, and to establish an international SAP practice that will target all the major markets for R/3.

Because of its own multinational support capability, HP believes it is an appropriate vendor to target other multinationals requiring to implement R/3 on a multi-site basis. HP's Professional Services Organization (PSO) has already carried out approximately a dozen implementations of R/3 where the implementation was of a multi-site/multinational nature. For example, HP's PSO has assisted a leading German car manufacturer in implementing R/3 in South Carolina (U.S.).

HP was the first equipment vendor to establish a joint R/3 competence centre with SAP. HP formed this joint SAP-HP competence centre within the SAP development centre in Walldorf, Germany in September 1990. In order to strengthen its international R/3 capability, HP is now establishing additional competence centres in Tokyo, Philadelphia (U.S.), Foster City (U.S.), Feltham (UK), and Johannesburg (South Africa).

SAP has already appointed HP as a *global* logo partner for R/3 services. Logo partners are appointed to safeguard the quality of R/3 implementations.

Prime Contractor for Organizational and Technological Consultancy

Organizations intending to implement R/3 face two considerable challenges namely:

- the organizational issues of re-shaping their business processes and applying R/3 to these processes
- the technological issues involved in designing and implementing a distributed client/server architecture

Although the scope of HP's involvement in R/3 implementations varies considerably in practice, HP aims to take on the role of prime contractor for R/3 implementations, and to assist users in addressing this range of issues. The company offers the following service components:

- application and organizational consulting
- education services
- project delivery
- technology consulting.

Exhibit 2

HP's R/3 Education Services Portfolio

Platform	R/3 Basic System	R/3 Modules
UNIX-Introduction	Basic System	OC Office & Communication
System and Network Administration	Report Generation and Interface Programming	AM Asset Management
ORACLE SQL Introduction	Development of dialog applications	CO Controlling
ORACLE DB Management	SAP Data Modelling	FI Finance
	Workstation Communication and Graphic	HR Human Resources
		MM Material Management
		PP Production Planning
		SD Sales and Distribution

HP's application and organizational consulting services focus on assisting organizations to re-shape their business processes and achieve a balance between company-specific requirements and the functionality of R/3. HP's services include introductory investigations, development of the organizational concept, application design, customization planning, and implementation.

PSO is building up its own resources for application and organizational consulting but also relies on partners to supplement its in-house skills. In particular, HP uses partners to support the more specialized modules of R/3. HP is tending to concentrate its own resources on the core modules of R/3, namely MRP and the financial modules.

Traditionally SAP has supplied all product training through its own education centres. However because of the high level of demand

for R/3 training, SAP has granted HP a formal licence to conduct R/3 product training in Germany. HP's R/3 education services portfolio is shown in Exhibit 2.

Accordingly HP is now piloting R/3 product training there, with the intention of extending its training licence internationally subject to SAP's agreement. HP and SNI are the only SAP partners to have been granted training licences.

Within technology consulting, HP offers client/server technology consulting, initial technical implementation, and system administration set-up.

Client/server architecture consulting assists users in planning an appropriate IT infrastructure for their organization including identifying the most appropriate database to use. HP also assists organizations in integrating R/3 into their

present IT environment. This may involve running mixed R/2 and R/3 environments or integrating R/3 with other applications used by the organization.

Within the initial technical implementation, HP assists users in preparing and installing the R/3 system and performs the initial set-up and optimization of the system. SAP has certified HP to carry out installations of R/3 on HP equipment. HP's system administration set-up assists users in areas such as establishing backup and recovery procedures.

Extending SAP Services Capability

HP has approximately 90 personnel trained in R/3 in Europe. These personnel are divided between project managers, application consultants, and technology consultants. Many of the application consultants have transferred from the team formerly responsible for the customer implementations of HP's own commercial applications.

Overall, HP's Professional Services Organization (PSO) has been involved in over a hundred R/3 implementations.

In addition to extending its geographic coverage, HP would like to further develop the scope of its R/3 project services. Currently, HP is:

- in the process of integrating R/3 with a number of CAD and shopfloor data collection products
- integrating R/3 with imaging and workflow technologies to offer manufacturing companies the option of processing electronic documents and moving to paperless operation.

Company Profile

A Publication from INPUT's Business Integration Programme – Europe

March 1994

IBM Consulting Group Achieves 100% Growth in U.K.

Large organizations no longer solely wish to purchase products from IT vendors. Nowadays they frequently require business partners to assist them in deriving business value from their IT investments.

In response to this trend, many of the leading project services vendors such as EDS, CSC, and Cap Gemini Sogeti have recently established management consultancy organizations.

IBM announced the formation of the IBM Consulting Group in October 1992. IBM Consulting Group is a global organization with 3,000 personnel worldwide. Since its formation, the IBM Consulting Group estimates that it has handled 1,500 engagements.

The IBM Consulting Group in the U.K. is headed by Steve Parrish, and has grown from 100 consultants in 1992 to 200 in December 1993. The U.K. branch of the

IBM Consulting Group intends to maintain high levels of growth by:

- Investing in new methodologies
- Extending its range of consulting capabilities.

Investing in New Methodologies

IBM is investing in major R&D projects to develop its methodologies for management consulting. The IBM Consulting Group's principal investments have been in developing:

- An organizational assessment methodology
- Techniques for applying the concept of mass customization.

The organizational assessment methodology tackles the issue of business

transformation and assists organizations in assessing their current capabilities and identifying appropriate performance targets.

Mass customization is the concept of customizing products or services for each individual client. IBM believes that this concept is especially applicable to financial institutions.

In addition, within the U.K., the IBM Consulting Group is collaborating with:

- The London Business School on the *Made in Britain* project to identify current best practice in business processes in the manufacturing sector
- Bournemouth University on a project to improve the value that end users derive from using PC's.

Other research initiatives being taken by the IBM Consulting Group include

- The creation of a hierarchical model to assess the value of information technology investment
- Identification of the value of establishing information architectures and implementing strategic applications
- A framework to identify how companies transform from one form to another form
- Development of a diagnostic and prescriptive methodology for organizational and cultural change

Extending Range of Consulting Capabilities

The IBM Consulting Group was originally organized on service lines. The Group's principal service lines are:

- Business transformation
- IT strategy and planning
- Information integration.

Approximately 130 of the U.K. IBM Consulting Group's personnel are within the business transformation, IT strategy and planning, rapid solutions, and usability groups. IBM perceives that business transformation should be viewed from the perspective of the client's customer and should encompass not just business processes, but also cultural and organizational issues and the information systems that support a process.

Within its current business transformation methodologies, the IBM Consulting Group makes considerable use of activity based costing and budgeting to analyze workflows.

The Rapid Solutions unit concentrates on assisting users in developing executive information systems to gain access to information previously unavailable to them. The purpose of the usability laboratory is to assist clients in the roll-out of applications by providing an environment that enables them to assess the way the application is being used by its recipients. This can identify ways of improving users' use of systems by, for example, identifying any weaknesses in training or documentation. Remedial

action in these areas can enhance the probability of the application being accepted, not rejected, by its recipients.

The IBM Consulting Group has established two industry sector facing units in the U.K.: one targeting the industrial sector and the other targeting the insurance sector. Approximately 50 of the U.K. IBM Consulting Group are focused on specific industry sectors. In the U.S., the IBM Consulting Group has additional practices targeting the telecommunications sector and the retail sector.

IBM considers itself to be strong in the industrial sector but finds that in practice, most assignments in this sector are concerned with continuous improvement rather than business transformation.

At present, the major portion of the IBM Consulting Group's assignments are being derived from the financial services sector. Other active sectors include

pharmaceuticals which is trying to move away from an R&D led culture, and the retail sector.

In addition to presenting industry-focused capabilities, the IBM Consulting Group is focusing on developing its functional consulting capabilities. In Europe, the IBM Consulting Group has just announced functional consulting capabilities in logistics and human resources.

In the future, it is probable that the IBM Consulting Group will announce additional consulting capabilities and additional industry-focused units.

While functional consulting potentially has the greater impact, it is important for the IBM Consulting Group to be seen to have strong industry-specific capability by its prospective clients.

Examples of projects that have been taken by the IBM Consulting Group are listed in Exhibit 1.

Exhibit 1

Project Examples—IBM Consulting Group

Client	Nature of Contract	Value \$(000's)
City Financial Institution	Evaluation of another consultancy's proposals	220
Health Services Provider	IT strategy for competitive advantage	170
Energy Management Company	Business transformation and information integration	500

Source: INPUT

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- Competitive positioning
- Acquisition targets

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- Outsourcing options
- Systems plans
- Peer position

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Gross Margins for Professional Services Remain Under Pressure

Profitability in professional services depends on the charge out rate which can be achieved and the level of staff utilisation combined with the cost of employment for professional services personnel.

Charge out rates are facing competitive pressure in much of the project services market, and the slow down in growth in the European project services market has led many of the leading vendors to reduce their headcount. In addition, many vendors are endeavouring to replace expensive personnel with less costly staff.

It is possible to identify trends in revenues per head and gross margins for some of the leading European professional services organizations.

The results of such an analysis show that:

- Average revenue per head for European professional services is approximately \$110K

- Growth in revenue per head between 1989 and 1992 averaged five percent per annum
- Gross margins after subtracting cost of employment are approximately 47 percent of revenues.

Revenue Per Head for European Professional Services \$110K

Exhibit 1 shows the revenue per head figures for 1992 for a number of leading professional services organisations operating in Europe.

With the exception of Andersen Consulting, the bulk of the revenues of these organisations are derived in Europe. In the cases of Andersen Consulting and Logica, only European data has been used.



Exhibit 1

Revenue per Head, 1992

Company	1992 \$(000's)
Finsiel	142
Ploenzke	123
Andersen Consulting*	112
Cap Gemini Sogeti	104
Hoskyns	98
Sema Group	95
Logica*	93
Average	112

Note: * = Europe

Source: INPUT

All the figures in Exhibit 1, with the exception of those for Andersen Consulting, have been converted from various European currencies using the exchange rates shown in Exhibit 2.

Exhibit 2

Exchange Rates Used

Country	Currency	U.S. Dollar
France	FF	5.26
Germany	DM	1.55
U.K.	£	0.634
Italy	Lira	1,360

Source: INPUT

Because of these conversions, it is difficult to compare the precise performance of these companies solely

using revenue per head as the criterion. Better measures of their recent performance may be growth in revenue per head and gross margin per head.

Growth in Revenue Per Head is Five Percent Per Annum

Exhibit 3 shows the growth in revenue per head which has been achieved by a number of these organisations between 1989 and 1992.

With the exception of Cap Gemini Sogeti, each of the organisations shown has consistently improved its revenue per capita in each succeeding year. Cap Gemini Sogeti has shown negligible improvement over this period. The most substantial improvement has been achieved by the Sema Group. Both Sema Group and Logica have largely closed the revenue per capita gap which existed between themselves and Hoskyns in 1989.

These performances are especially commendable since Sema Group and Logica derive lower proportions of their revenues from outsourcing than Hoskyns. Project services activities typically have lower revenue per capita than outsourcing operations.

This contrast is illustrated for Hoskyns in Exhibit 4.

Information systems management is Hoskyns' outsourcing activity, which along with consulting and education and training, had significantly higher revenue per capita than the project services activity.

Exhibit 3

Revenue per Head Growth

Company	'89-'92 CAGR (%)	1989	1990	1991	1992
Sema Group	10	71	79	87	95
Logica	6	78	82	87	94
Hoskyns	3	89	92	96	98
Cap Gemini Sogeti	-	103	106	106	104
Average	5	85	90	94	98

Source: INPUT

Exhibit 4

Hoskyns
Gross Margins by Service Line, 1992

Service Line	Revenue per head \$(000's)	Cost per head \$(000's)	Margin \$(000's)	Percent
Information Systems Management	108	45*	63	58
Consulting, Education & Training	105	45*	60	57
Project Services & Software Products	88	45*	43	49
Overall	98	45	53	54

Note: * taken from average cost per head for all activities

Source: INPUT

Gross Margins are 47%

However revenues per head ignores the cost of employment. An even better measure of a company's success in project services may be the gross margin after deduction of cost of employment.

Such gross margins are shown for a group of leading European professional services organisations in Exhibit 5.

Exhibit 5

Gross Margin per Employee, 1992

Company	Gross Margin \$(000's)	Gross Margin %	Revenue per head \$(000's)	Cost per head \$(000's)
Hoskyns	53	54	98	45
Logica	47	50	94	47
Sema Group	44	46	95	51
Cap Gemini Sogeti	39	38	104	65
Average	46	47	98	52

Source: INPUT

On this criterion Hoskyns is the most successful of the group because of its comparatively low employee costs. Conversely, Cap Gemini Sogeti has by far the worst margins because of its comparatively high cost of employment.

Changes in gross margin per employee for these organisations between 1991 and 1992 are listed in Exhibit 6.

Hoskyns maintained its high gross margin in both years, while Cap Gemini Sogeti's gross margin per employee declined further in 1992 from an already low level.

Exhibit 6

Gross Margin per Employee

Company	Margin (%)	
	1991	1992
Hoskyns	54	54
Logica	46	50
Sema Group	48	46
Cap Gemini Sogeti	41	38
Average	47	47

Source: INPUT

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March 1994

Users Believe Vendors Should Take More Responsibility for Project Risk

Vendors often seem frustrated with user tendering procedures. From the vendor perspective, one of the major causes of project failure is inadequately specified requirements. If the vendor accepts these stated requirements unquestioningly, then the vendor can find that they have met the specification yet failed to adequately address the real business need. The impact of these ill-defined requirements is often compounded by tendering procedures that:

- Place a heavy emphasis on price
- Provide limited time to assess the business relevance of the proposed system
- Expect the vendor to rapidly commit to a fixed price.

Given an appropriate specification, most vendors perceive that they have excellent project capabilities to deliver the required system.

However, users take a slightly different view in that they:

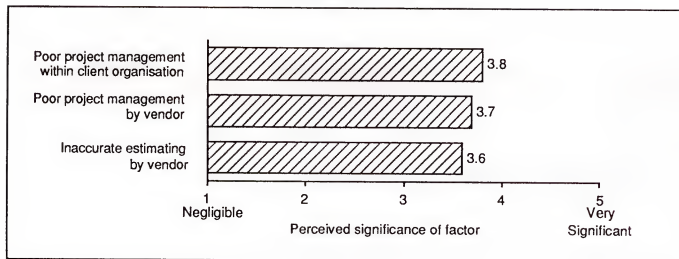
- Perceive inadequate project management to be the major source of risk
- Recognise the problems caused by inadequate definitions of requirements
- Perceive vendor profitability to be adequate to cover all project risk.

Inadequate Project Management Perceived to be the Major Source of Project Risk

Sixty respondents, equally divided between senior executives and IT managers, were asked to rate the significance of each of a number of potential sources of project risk. The factors rated most highly are listed in Exhibit 1.

Exhibit 1

Significance of Risk Factors User Perception, Europe



Sample of 60 users. Standard error = 0.1

Source: INPUT

Inadequate project management and inaccurate estimating are viewed as the most significant risk factors. However while users perceive estimating to be the responsibility of the vendor, users perceive their own organizations project management and the vendor's project management to comprise approximately equal threats to project success. It is well known within the industry that the client's inability to manage the vendor is a considerable potential threat to project success. Clearly, users also recognise this.

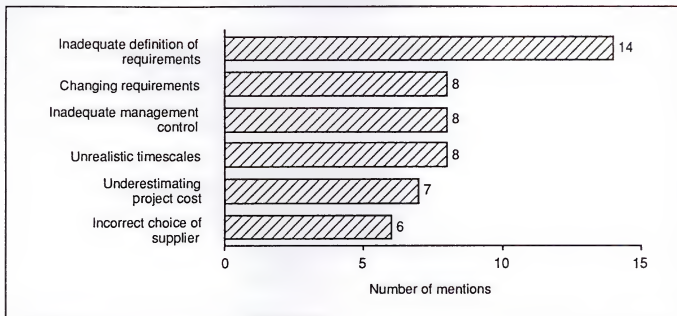
Dangers of Inadequate Specifications are Recognised

Although users perceive that the most significant threats to their projects come from low levels of project management skill, they are very conscious of the dangers of inadequate system specifications. When users were asked to

identify the principal causes of project failure, inadequate definition of requirements and requirements changing during the course of the project figured prominently in their answers as shown in Exhibit 2.

Other prominent factors cited by users include the adoption of unrealistic timescales and the acceptance of optimistic cost estimates. Users perceive that both they and vendors contribute towards these failings. The adoption of unrealistic timescales is principally seen to be caused by their imposition by client management, though some respondents perceived that vendors sometimes overestimated their capability to meet the desired timescale. Underfunding by user management is also seen to be a contributory factor to poor cost estimating.

Exhibit 2

Principal Causes of Project Failure,
User Perception

Sample of 60 users

Source: INPUT

However, users perceive that vendors are the principal cause of problems here through incorrect estimation and underpricing.

Respondents were also asked what steps should be taken to minimise the likelihood of project failure. As shown in Exhibit 3, their answers to this question tended to focus on improving the quality of the initial specification and on improving change control procedures.

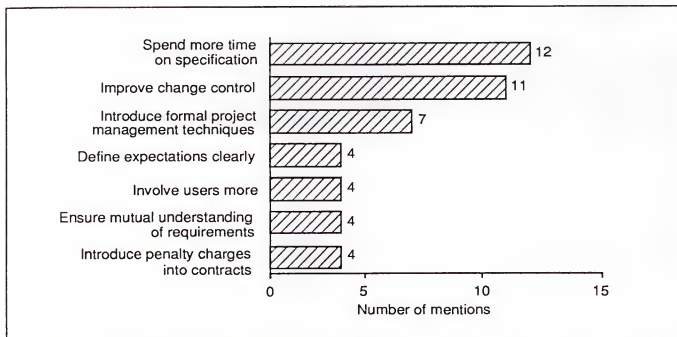
Users recognise the importance of spending more time on the specification, but come under considerable pressure to get projects underway in short timescales. At least a minority of users recognise that vendors should spend

more time becoming involved in the specification prior to the commencement of the project. Once the project is underway, the respondents recognised the importance of involvement of the future users of the system and regular steering group meetings. However, all the respondents still seemed committed to a development model where:

- A fixed specification is produced
- The vendor commits to this specification at a fixed price
- Both parties endeavour to minimise the number of changes allowed.

Exhibit 3

How to Minimize Chances of Project Failure, User Perspective



Sample of 60 users

Source: INPUT

Indeed one respondent even suggested that no changes should be allowed once the specification has been agreed between vendor and client.

However, more typically respondents restricted themselves to a desire to ensure that client and vendor had a mutual understanding of the specification prior to system development and a strict enforcement of change control procedures once development was underway.

Surprisingly, more flexible means of establishing system specifications, such as prototyping were not mentioned by even a single respondent as a means of reducing the probability of project failure.

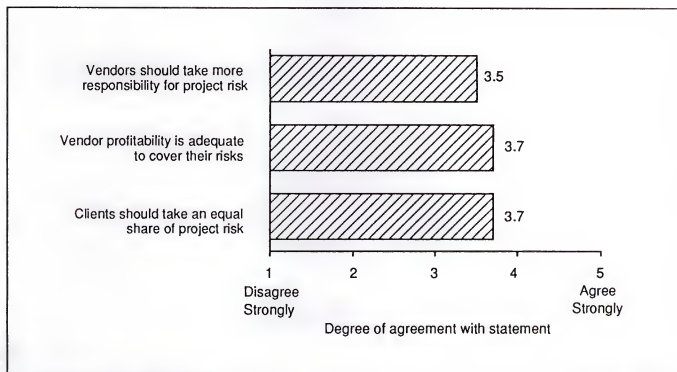
Vendor Profits Expected to Cover Project Risks

Exhibit 4 indicates user attitudes to risk sharing.

Users tend to believe that they should take an equal share of project risks.

However they also believe that vendors should take more responsibility for project risk. This seems to imply that users currently perceive that they shoulder the bulk of project risk despite the use of fixed price contracts. Users also tend to believe that vendors are well rewarded financially and that their profits from project services are sufficient to act as insurance cover to rectify any problems that might arise.

Exhibit 4

User Attitudes to Risk,
Europe

Sample of 60 users. Standard error = 0.15

Source: INPUT

Overall users tend to favour the use of penalty clauses rather than vendor incentives as a means of achieving more favourable project outcomes. A number of respondents suggested that project risk could be reduced by tightening contract terms and by the introduction of penalty clauses typically for late delivery.

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Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

Vol. V, No. 5

March 1994

Clients Exhibit Strong Preference for Fixed Price Projects

Business integration vendors perceive a number of significant disadvantages with fixed price projects. Fixed price projects typically mean that the project specification is developed with little, or no, input from the vendor. Once a price has been agreed to meet this specification, it becomes difficult to change the course of the project.

In extreme cases, this has resulted in systems being developed that meet the specification but have little relevance to the real business need. In addition, fixed price projects can become adversarial in nature, resulting in ill-matched systems for clients and low profitability for vendors.

As a result, some vendors now only offer fixed price contracts when these are specifically requested by the client. Other vendors are endeavouring to pioneer new pricing mechanisms such as value-based pricing and joint ventures.

However, clients still show a marked preference for fixed price contracts. Their overall attitudes towards a number of

pricing mechanisms can be summarised as follows:

- Fixed price contracts are most suitable for large projects
- Time and materials pricing can be used to hasten progress and for small projects
- Value-based pricing is of very limited applicability
- Joint ventures entail a heavy marketing involvement

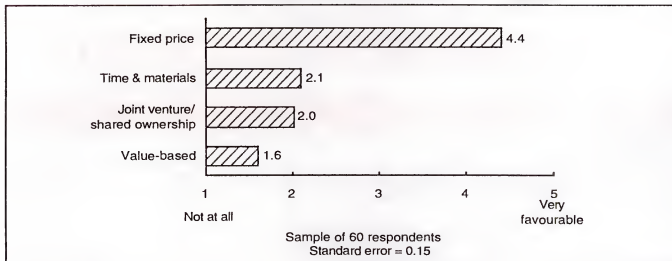
Fixed Price Projects are Most Suitable for Large Projects

Exhibit 1 shows the extent to which users and IT managers favour each of the pricing mechanisms shown.

Both users and IT managers show a strong overall preference for fixed price over alternative pricing mechanisms. However, senior non-IT executives show slightly less enthusiasm for fixed price contracts than their IT managers, and exhibit a greater propensity to consider joint ventures and value-based pricing.

Exhibit 1

Pricing Mechanisms Favoured



Source: INPUT

Clients show a strong preference for fixed price projects when purchasing large systems integration style projects. Respondents' preferences when purchasing projects with values greater than \$500K are shown in Exhibit 2.

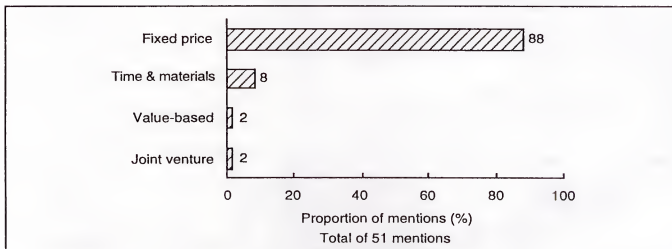
Users and IT managers agree on the principal advantages of fixed price pricing mechanisms for large projects.

The main advantages of this approach are perceived to be:

- Predictable costs/accurate budgeting
- Ability to make competitive comparisons and obtain value for money
- Ease of procurement and obtaining management approval

Exhibit 2

Pricing Mechanisms Preferred: Large Projects



Source: INPUT

Users perceived the main disadvantages of fixed price pricing to be the possibility of disputes over changes to the specification and a possible drop in vendor commitment should the project start to overrun. On the other hand, the principal concern of IT managers was that the use of fixed price contracts could lead to an over-emphasis on price so that price became dominant in vendor selection.

Time & Materials is Most Applicable to Small Projects

Exhibit 3 shows respondents' preferences for pricing small projects valued at less than \$500k.

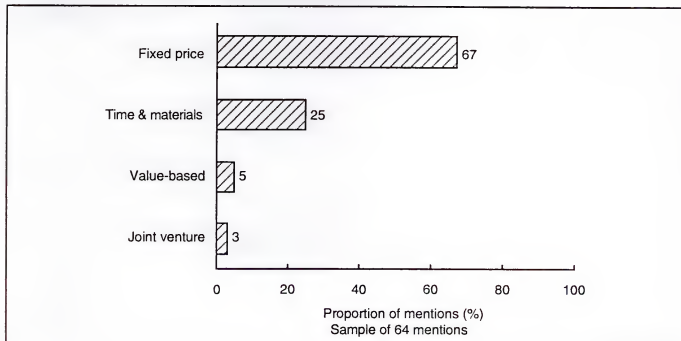
Time and materials pricing is widely perceived to have one significant

advantage over fixed price methods, namely the ability to adjust the level of resources brought to bear on a project quickly and easily. This applies to switching projects off as well as increasing resources rapidly to meet changing needs. However, time and materials pricing is regarded by many respondents as only suitable for small projects. Respondents' reluctance to use time and materials pricing for large projects stems from fears that:

- The final project cost cannot easily be identified and costs tend to exceed expectations.
- Vendors will deliver low productivity in these circumstances

Exhibit 3

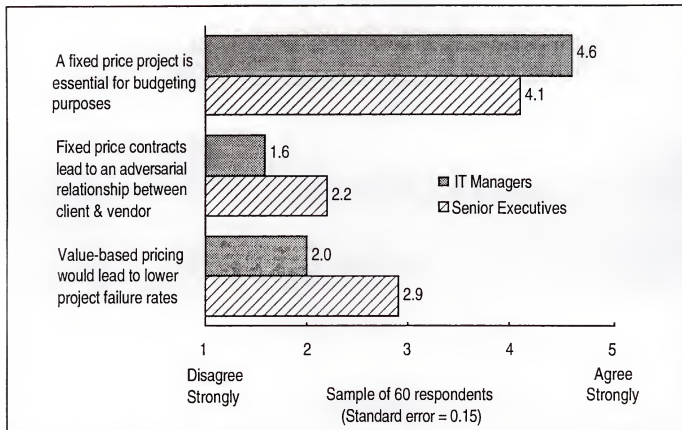
Pricing Mechanisms Preferred: Small Projects



Source: INPUT

Exhibit 4

Attitudes to Pricing Mechanisms



Source: INPUT

Value-Based Pricing is of Limited Applicability

Exhibit 4 summarizes some key attitudes towards fixed price and value-based pricing mechanisms.

Typically, both senior executives and IT managers remain committed to fixed price since this method is simple, has few perceived disadvantages, and enables clients to determine their future spend accurately. Managers, particularly IT managers, do not perceive fixed price methods to be adversarial in nature. Value-based pricing is thought to be a good idea in theory, but to have a number of practical failings. Users perceive that value-based pricing is difficult to

manage, prone to disputes, and of limited applicability. IT managers perceive that value-based pricing is a high risk approach, that difficulties would arise in attributing benefits between the IT project and other factors, and that lengthy negotiations would be required to obtain senior management approval. As a result, managers do not perceive value-based pricing as offering a lower risk approach than fixed price methods. Overall, value-based pricing is viewed as being applicable to only a small number of projects where any benefits accrued can be readily demonstrated to arise from improved use of IT. Warehousing projects were suggested as a possible example of this type of project.

Joint Ventures Entail Marketing Involvement

Some vendors, for example Logica, have been successful in developing a joint venture approach with their clients recently. Prospective clients see some advantages in this approach. In particular, they perceive that the initial project will be comparatively low cost, and that vendor performance will be motivated by expectation of future sales.

However, users and IT managers are wary of high levels of commitment as a key reference site for the vendor. In addition, users perceive that joint ventures can be risky especially for large projects. The principal perceived risks are that joint management of the project may be difficult, with the vendor trying to cater for a broader need than that of the client, and that this wider perspective may delay project completion.

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Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

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March 1994

Vendors Need to Educate Clients in the Concept of Partnership

Clients and vendors both talk about improving the quality of IT projects through improved co-operation between client and vendor. However, in practice, client organisations are not prepared to forgo competitive tendering in order to reap the benefits of improved partnership between client and supplier.

While much of European manufacturing industry has recognised the benefits that can be derived from establishing close relationships with a small number of preferred component suppliers, this message has clearly not yet been understood by purchasers of IT project services. At present, the purchasing of project services is characterised by clients:

- Recognising the desirability of improving their partnerships with vendors
- But remaining committed to individual tendering of projects

- Needing to be persuaded of the benefits of long-term co-operation between customer and supplier.

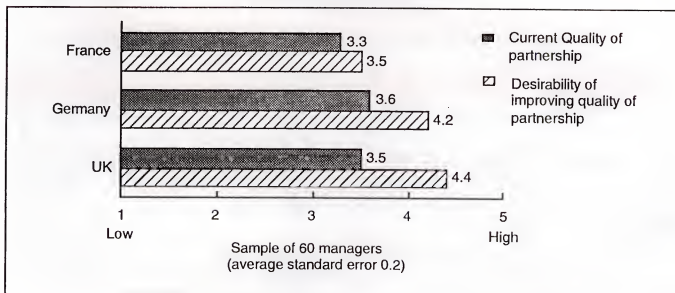
Clients Recognise the Need to Improve Partnerships

Exhibit 1 indicates managers' current ratings of the quality of partnership achieved with their project services' suppliers, and the importance they attach to improving the quality of these partnerships.

The ratings given to the current quality of partnership are moderate, rather than unacceptable, and are comparable across France, Germany, and the U.K.. However, clients in the U.K. and Germany show a strong desire to improve the current quality of partnership between themselves and their project services suppliers. This is an encouraging sign for vendors. In addition, both users and IT managers expressed strong agreement with the statement "Improved partnerships would lead to improved ability to meet the client's business need".

Exhibit 1

Partnership Quality Project Services, Europe



Source: INPUT

Clients Remain Committed to Tendering Individual Projects

Clients typically have a favourable attitude towards improving the quality of their partnerships with project services suppliers. Nonetheless it is important to note that the concept of partnership has been much abused by IT services companies in the past. This has left a minority of clients very sceptical of the concept of partnership believing it to lack any substance. However, it is not the attitude of this minority that is the major issue to be faced by vendors. The major issue for vendors is the restricted scope of partnership as understood by the majority of project services purchasers.

INPUT asked managers to identify the major areas of responsibility for vendors and the major responsibilities of clients in IT projects. The degrees to which managers perceived that vendors should

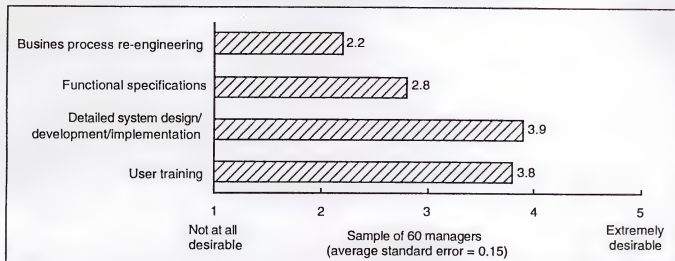
take responsibility for a number of major project functions are listed in Exhibit 2.

Managers still strongly believe that users should be responsible for business process re-engineering and for developing statements of requirements and functional specifications. This view is shared equally by both IT managers and senior non-IT executives. Vendors are then expected to quote a price to meet this functional specification, and, on acceptance, to become responsible for detailed system design, development, and implementation.

Managers identified the agreement of requirements and business objectives as the key area where quality of partnership is critical to project success. However, in spite of this recognition, clients remain reluctant to involve vendors in identifying their business objectives and in producing initial system specifications to meet their needs.

Exhibit 2

Client Attitude towards Vendor Responsibility



Source: INPUT

Clients Need to be Persuaded of the Benefits of More Extensive Co-operation

Managers still tend to believe that in the case of IT projects, the partnership begins once the specification has been finalised, tendering completed, and the project awarded. Accordingly the main steps that managers perceive will improve the quality of partnership between supplier and client tend to be tactical ones such as:

- Maintaining good working/personal relationships
- Ensuring senior management involvement and support
- Holding regular review meetings
- Ensuring that a mutual understanding of the project's objectives is achieved between client and supplier.

While these measures are all worthy ones, they do not begin to address the really fundamental issues of partnership in a way that would be understood in manufacturing industry. Most managers have little awareness of the potential benefits that could be derived by developing long-term relationships with preferred suppliers and by involving these preferred suppliers in identifying ways in which IT could be applied for the benefit of the business. It is important that vendors educate potential clients in these types of approach if organisations are to take advantage of trends such as business re-engineering. If vendors continue to be used principally for technical aspects of projects such as detailed design and development, then users will continue to find that their expectations from IT are unfulfilled.



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Research Bulletin

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April 1994

Vendors Anticipate Increased Use of Value-Based Pricing

Users currently show a strong preference for fixed price contracts in the project services market. However, many vendors perceive that *fixed pricing* is merely one stage in the evolution of project pricing rather than its ultimate goal. To a certain extent, this may be designed to be a self-fulfilling prophecy, since vendors would like to improve their project services' profit levels. Fixed price contracts have typically had an adverse impact on vendor profitability.

Vendors anticipate that the next stage in the evolution of project pricing will be increased emphasis on value-based pricing. Value-based pricing can be defined as the linking of project price to the achievement of specific business goals within the client organisation. If the project succeeds in achieving these goals then the vendor is rewarded with a share of the savings or of the increased

revenues. This approach has potential benefit for both client and vendor, since, at present:

- Projects are inadequately linked to business goals
- Up to one-third of projects fail to satisfy the client's business need
- Value-based pricing focuses management attention on the achievement of the client's business goals.

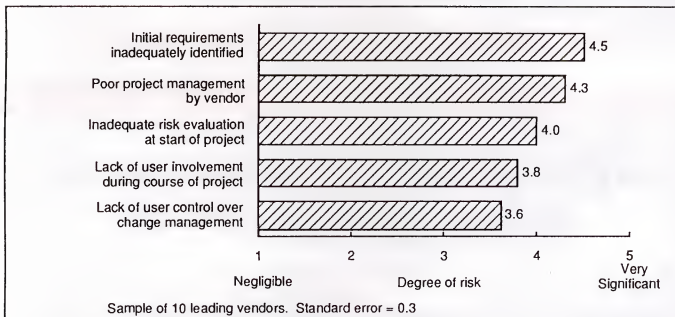
Projects are Inadequately Linked to Business Goals

Exhibit 1 shows an analysis of the major sources of project risk from the vendors' perspective.

Exhibit 2 show an analysis of the factors identified by vendors to be comparatively low sources of project risk.

Exhibit 1

Sources of Project Risk: High Risk Factors



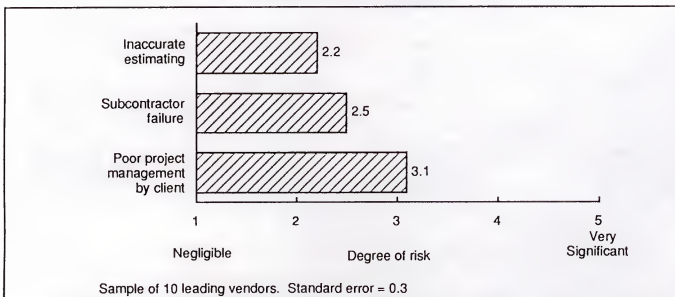
Source: INPUT

Essentially, vendors perceive that the major sources of project risk lie in the front-end stages of a project. However, in spite of this, vendors still typically seem to place the responsibility for defining requirements and ensuring user

commitment to them firmly in the hands of the client organisation. Only one vendor suggested that prototyping was essential to assist the client in clarifying his requirements and developing a suitable specification.

Exhibit 2

Sources of Project Risk: Low Risk Factors



Source: INPUT

The same vendor also suggested that it was a responsibility of the vendor to ensure that the business owner of the project on the client side fully understood the project. In many cases, client sign-off of the initial specification is an administrative procedure, done without any real understanding of the project's scope and likely impact on the client organisation. In addition, few vendors appear to consider that promoting the virtues of the project to users is an important way of increasing project commitment and hence reducing project risk.

Few vendors appear to have consistently compiled metrics for estimating project costs. Instead they tend to base their decisions on two independent, but internal estimates from experienced project personnel. Vendors claim confidence in this approach, but the user community has experienced concern over

vendor capability in this area and in the related area of managing subcontractors.

Up to One-third of Projects Fail to Satisfy Client's Business Needs

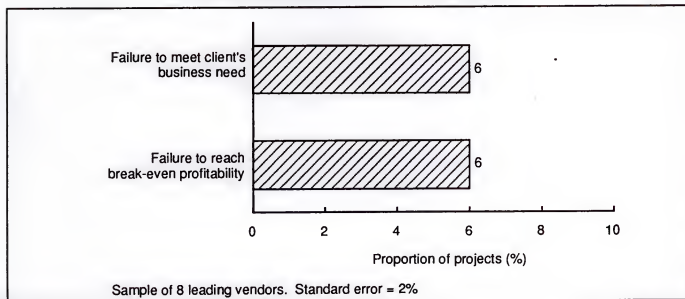
Exhibit 3 shows the average proportion of projects, according to vendors that fail because the project:

- Does not meet the client's business need
- Does not reach break-even in terms of the vendor's profitability.

A number of vendors interviewed by INPUT were reluctant to admit that projects ever failed to meet the client's business need. The typical argument used by these vendors was that the customer's business need would always be met even if project timescales were significantly exceeded in meeting this objective.

Exhibit 3

Project Failure Rates Vendor Perspective



Source: INPUT

Indeed the majority of vendors estimated that the failure rate on this criterion was less than 5%. There is no reason to doubt these estimates if a very narrow view of meeting the business need is taken.

However, some vendors provided indications that client satisfaction may be lower than this. One vendor stated that their customer satisfaction studies showed acceptable satisfaction levels for approximately 80% of projects. Another major vendor estimated that in the strictest sense their projects had failed to meet the client's business need in up to one-third of projects with a significant number of projects being over-engineered. This is a common criticism of major business integration projects.

Although, project margins are under threat from fixed price projects, the proportion of projects where vendors fail to break even is comparatively low, averaging 6%. Only one major vendor

estimated that it might fail to break even in more than 10% of projects. However, the proportion of projects where vendors fail to meet their target profitability will be much higher than this.

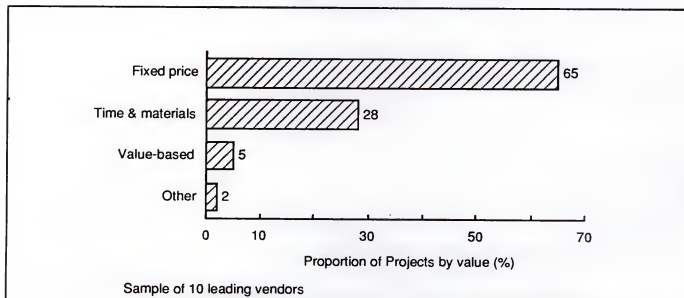
Vendors still typically price projects based on the combination of cost plus and the price at which they feel they can win the business. Ideally vendors aim for margins of approximately 15%, but, in practice, this figure is constrained by competition. Vendors only decline to bid for a very small proportion of projects because of the perceived level of project risk, typically this is around 5%. The threat from competitors is a much more serious impediment to bidding.

Value-Based Pricing Emphasises the Achievement of Business Goals

Exhibit 4 shows the current usage of pricing mechanisms by leading project services vendors.

Exhibit 4

Project Pricing Mechanisms 1994 Usage



Source: INPUT

Currently, fixed price contracts dominate the project services market. Value-based pricing is only used in a minority of cases. However, vendors expect the use of value-based pricing to increase over the next two years, reaching a position where it is used in 12% of projects by value in 1996. This growth will be largely matched by a fall in the proportion of projects conducted on a time and materials basis, which will continue to be superseded by use of fixed price mechanisms. In addition, an increasing proportion of *project services* activity will be carried out within an outsourcing framework as users request vendors to operate the systems they have developed.

Another approach to project pricing has been developed by Andersen Consulting with a concept called *target pricing*. This is essentially a fixed price approach but one that allows the scope of the project to

change within the target price. Hence this approach should provide the client with more flexibility than a conventional fixed price contract.

The main issue in business integration projects remains the difficulty of addressing the real business need. The flaw in conventional fixed price contracts is that they assume that the user can specify a precise solution to the business need very early in the project. This is frequently a very unrealistic expectation. However, the trend towards value-based pricing provides the vendors with an incentive to address business problems rather than just minimise their own commercial exposure while delivering a technical solution. The challenge remains to convince users of the virtues of this approach. Initially, at least, value-based pricing will typically be used in combination with a fixed price element.

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Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

Vol. V, No. 8

May 1994

Project Personnel Average 150 Revenue Earning Days Per Annum

Benchmarking has become very fashionable in recent years as a mechanism for analysing organisations' relative effectiveness and efficiency and identifying areas where business processes need to be improved. Consequently, there has been much activity to endeavour to identify examples of world class business processes, regardless of the organisation's business sector. Indeed, the major IT vendors have themselves shown considerable interest in re-engineering their processes as their business environment has become increasingly competitive.

This research bulletin is the first of two, that endeavours to provide some basic benchmarking data for vendors operating in the systems integration and project services environments. The metrics shown below are based on the results of a questionnaire sent to the majority of major project services vendors, requesting highly confidential data. Seven responses were received, primarily from the systems integration units of leading equipment vendors in Germany and the U.K..

This bulletin considers two key areas: R&D expenditure and utilisation of personnel. On average:

- Vendors spend four per cent of revenues on methodology R&D
- Vendors achieve a seventy per cent utilisation rate.

Vendor Investment in Methodology R&D

As the focus of the major equipment vendors has shifted from products to services, so the profile of their R&D expenditure has begun to change accordingly. In order for these vendors to succeed within the systems integration market, they have had to develop their own proprietary project management methodologies. As some organisations, such as IBM Consulting, turn their attention to management consulting, so there is a corresponding need to develop methodologies that can be used to establish their credibility with potential clients and facilitate repeatability of assignments.

Exhibit 1

R&D Expenditure

Spend as Proportion of Revenues (%)	Quality	R&D Overall	Methodology R&D	Technology R&D
Average	3	8	4	4
Minimum	1	4	1	2.5
Maximum	5	15	10	5

Source: INPUT

In addition, the majority of vendors' professional services units in Europe are developing quality management procedures to achieve ISO 9000 accreditation. The major vendors active in the U.K. project services market have typically achieved accreditation, but many of their subsidiaries elsewhere in Europe are still in the final stages of working towards accreditation.

Exhibit 1 identifies the proportions of their revenues that organisations currently spend on quality - assurance, control, and management - and on R&D.

The proportion of revenues that the systems integration units of equipment vendors spend on establishing quality procedures varies between one and five per cent. The individual level of spending is probably affected by the stage the organisation has reached in implementing quality assurance procedures. One of the organisations that estimated its spending at one per cent of revenues is already accredited and another merely recognises quality as an area that will need to be tackled as a priority in the near future.

Interestingly, a professional services vendor interpreted quality more widely in terms of quality assurance within individual projects with the result that this organisation estimated that quality accounted for an amount equivalent to forty per cent of its revenues.

Overall, vendors estimated that their R&D expenditure was divided approximately equally between methodology R&D and technology R&D, with even the equipment vendors on average now spending more than forty per cent of their R&D budgets on methodology R&D.

Professional services vendors appear to spend a higher proportion of their revenues on R&D than the equipment vendors, with a greater share of this expenditure directed towards methodology R&D.

Project Personnel Utilisation Rates

Exhibit 2 analyses the number of days that project services personnel spend on training, holidays, and sickness.

Exhibit 2

Training, Holidays, and Sickness

Number of days per annum	Average	Maximum	Minimum
Training	13	15	10
Holidays	30	33	29
Sickness	6	8	5
Total	49	52	45

Source: INPUT

No distinction has been made between the various categories of project personnel, since in most instances these measures were identical for all project personnel within a given vendor. Indeed there is comparatively little deviation in these metrics between vendors regardless of the region of Europe covered by the figures provided.

On average these categories account for twenty per cent of the annual availability

Exhibit 3

of project personnel - assuming a total initial availability of two hundred and fifty days per annum. In terms of opportunity cost of the staff involved, but excluding the cost of training provision, the training investment is approximately 8.5% of each person's annual billings.

Exhibit 3 identifies the number of days each category of personnel averages on pre-sales activity.

Number of Pre-Sales Days

Category of personnel	Average	Maximum	Minimum
Senior business consultant	75	85	65
Senior IT consultant	45	85	20
Junior consultants	40	85	20
Consultants overall	40	85	20
Project director	50	65	40
Project manager	40	65	20
Other project personnel	50	85	20
Project personnel overall	40	85	20

Source: INPUT

Exhibit 4

Project Personnel Descriptions

Project director	Responsible to client for project delivery on major projects
Project manager	Responsible for individual area within major project e.g. management of one or more subcontractors
Project personnel overall	Includes all project personnel including consultants
Senior business consultant	Includes management consultancy and high-level application-specific advice
Senior IT consultant	For example, includes IT strategy development and high-level technical infrastructure design

Source: INPUT

To provide guidance to respondents, the definitions of project personnel shown in Exhibit 4 were provided to respondents.

Naturally, the more senior the personnel, the more time they spend on pre-sales activity. Nonetheless, there was considerable variation between vendors on the number of days that consultants spend on pre-sales activity. While this may reflect definitional differences between vendors, this benchmarking exercise suggests that only senior business consultants should spend more

than fifty days per annum on pre-sales activity. The vendor's success rates in winning new contracts would appear to be questionable in organisations where comparatively junior consultants are spending in excess of fifty days per annum on pre-sales activity. For junior consultants, a reasonable benchmark appears to be a target of less than thirty days pre-sales activity.

Exhibit 5 identifies the average number of revenue earning days by category of project personnel.

Exhibit 5

Number of Revenue Earning Days

Category of personnel	Average	Maximum	Minimum
Senior business consultant	100	150	50
Senior IT consultant	140	180	100
Junior consultants	150	180	100
Consultants overall	135	180	100
Project director	130	150	90
Project manager	140	180	120
Other project personnel	155	200	100
Project personnel overall	150	190	100

Source: INPUT

It is in vendors' immediate financial interests to maximise the number of revenue earning days for all categories of personnel. In practice, however senior business consultants need to spend a comparatively high proportion of their time on generating sales. In some instances, particularly where organisations use their senior directors as pre-sales business consultants, these

personnel may spend a greater proportion of their time on pre-sales activity than on subsequent revenue earning activity.

For all other personnel, the figures collected suggest that vendors should aim for a minimum target of 140 revenue earning days per year. A number of vendors already achieve utilisation rates well in excess of this figure.

This Vendor Profile is issued as part of INPUT's European Business Integration Program. If you have questions or comments on this bulletin, please call your local INPUT organization or Peter Lines at INPUT, 17 Hill Street, London W1X 7FB, (+44) 71 493 9335.

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Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

Vol. V, No. 10

July 1994

Client Requirements for Vendor Project Responsibility

The systems integration (SI) market has been driven by client requirement for *total* vendor responsibility for major development and implementation projects. However, the systems integration delivery mode still only accounts for some 20% of the total amount spent in Europe on sub-contracted systems development.

Further, INPUT's most recent European user survey on project services indicates significant differences in client attitude, towards the devolvement of complete project responsibility, between different country business cultures.

Consequently, vendors will need to carefully adapt their marketing approaches for supplying contracted project services, not only between different country operations but also on an account by account basis.

This bulletin examines the principal points that emerge from research of buyer requirements for project services and

highlights the particular elements around which vendors can adapt their offerings and marketing messages.

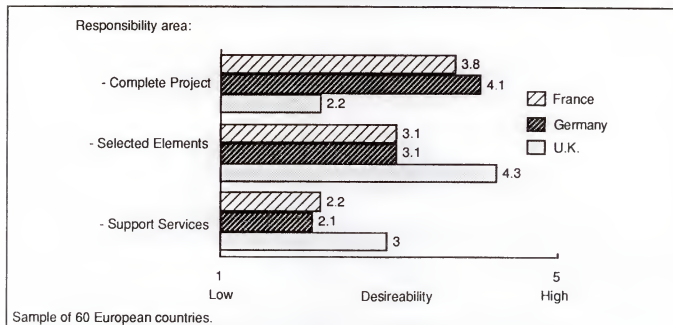
Country Culture Differences

Exhibit 1 shows the analysis of user responses regarding their requirement for the degree of vendor responsibility within the major IT contracting domain. This analysis shows a clear distinction in user opinion, between The French and German samples on the one hand and the U.K. sample U.K. on the other, in respect of taking total project responsibility.

Interestingly the responses to the same question in a recent U.S. survey matched very closely those of the U.K. sample analysed here. The comparison is shown in Exhibit 2. This distinctly different profile of requirements in respect of project responsibility maps to the very different business culture models that exist between the Anglo-Saxon world and Continental Europe.

Exhibit 1

Country Differences — Client Requirements for Veondor Project Responsibility



Source: INPUT

In the U.K., as in the United States, there has been a distinct cooling towards major projects over the last few years. Users have been noted to place stronger preference for smaller projects for quicker results payback. Growing confidence on the part of IS managers to tackle client/server communications based developments based on more and more standard components have helped to fuel this trend.

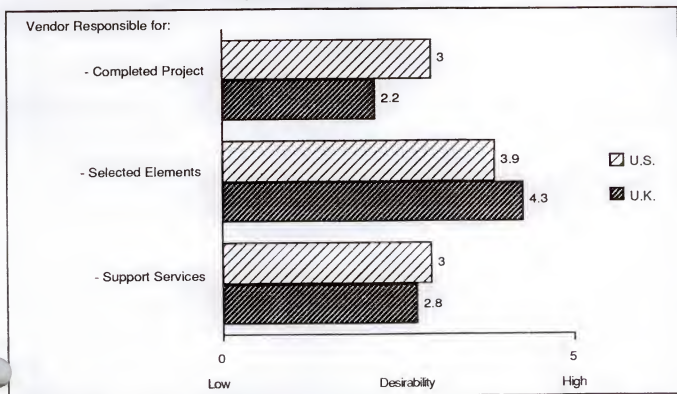
This research result points vendors towards a reassessment of one of the fundamental assumptions of the SI movement, that increasing numbers of clients want or need to devolve complete responsibility for a project to a third party organisation. Clearly distinctly different approaches are required in different business environments.

Naturally, there will continue to be a demand for major high-risk project contracting services and some vendors will continue to seek out these opportunities. For example one vendor recently interviewed by INPUT said "The company actively seeks the high risk area, because here competition will be limited, contracts will be lengthy, profits will be high and the scale and experience in conducting the job will be very good both for the firm and the individuals involved".

However, changes in IS responsibility within organisations and increasing commoditisation of IT markets is leading to some client's preferring to sub-contract only selected elements of a project.

Exhibit 2

User Attitudes Towards Project Responsibility — United Kingdom and United States Comparison



Source: INPUT

Allocation of Responsibilities

Some further insights to user needs in project contracting are provided by the analysis shown in Exhibit 3. Users were asked to state, unprompted, what areas they felt should be the vendor's responsibility as opposed to their own responsibility, in respect of large project contracting. This exhibit highlights the key areas for vendors to focus on in their marketing of project services:

- Development and integration services
- Implementation

- Detailed systems design
- Training.

In contrast to these areas of need, vendors should tread carefully when proposing overall management control and undertaking the specification of system requirements. Above all, vendors need to recognise that all clients are different, the key to sales success is the demonstration of key competence in the area that is perceived by the client to be their biggest problem. This is the real meaning of *solutions* marketing, not the supposed ability to meet all of the needs that a client may have.

Allocation of Responsibility in System Development Projects

Area of Responsibility	User Requirement for Responsibility Percentage of Responses		
		User	
	Vendor	Business Manager View	iS Manager View
Development and integration	28	5	15
Implementation	23	4	12
Detailed Systems design	19	-	-
Overall management control	11	39	15
Training	9	3	2
Defining software	3	3	3
Specifying system requirements	3	27	32
Specifying business requirements	-	11	15
Others	4	8	6
Total Percentage	100%	100%	100%

Source: INPUT

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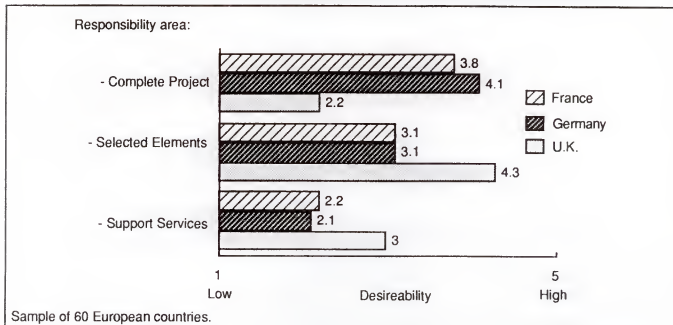
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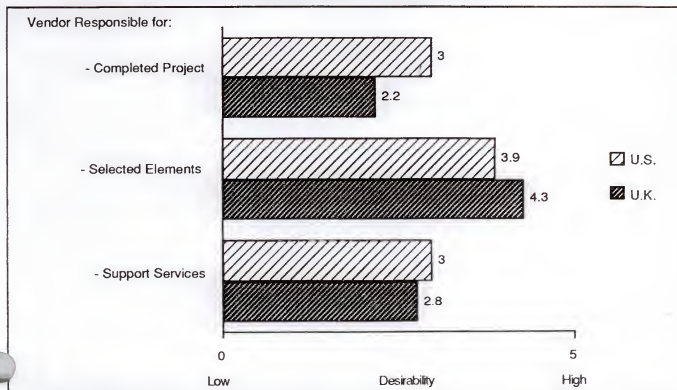
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Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

Vol. V No 11

July 1994

Business Process Re-engineering and the Systems Integration Opportunity

Vendors of systems integration (SI) services have seized on the Business Process Re-engineering (BPR) movement as a marketing route to winning large information technology (IT) project development contracts. This has led to the development of management consulting operations focused on BPR by leading SI vendors, either organically or by acquisition.

A key issue for systems integration and professional services contractors is the extent to which a position in BPR is important in the pursuit of contract business. INPUT's latest survey of user opinion provides some insights to the current market situation:

- An improving economic environment is shifting executive priorities to the improved application of IT rather than just reducing IT expenditure
- About half of the European managers interviewed believe that IT should be the pro-active element in re-engineering initiatives

- Improving the efficiency of individual processes is the primary benefit of business re-engineering.

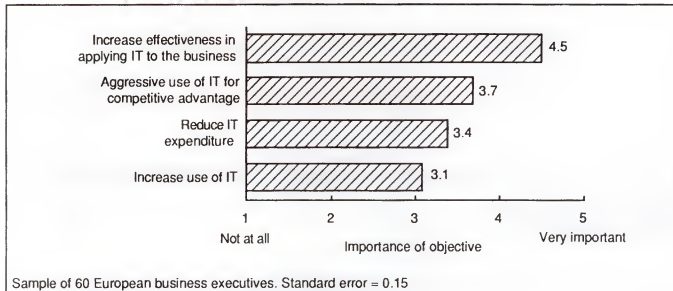
These last two points underline the extent to which the term BPR is misunderstood and applied to any type of change initiative. This mis-labelling leads to the dilution of the essential principles of BPR, and its failure to deliver its promised results. One of the key characteristics of BPR is meant to be its questioning of everything that an organisation does and how it does it. BPR is intended to target major improvements in whole business performance, not just tinkering with individual aspects of an organisation

Executive Priorities shift Towards Improved Application of IT

The level of importance attached to different aspects of corporate IT objectives by senior executives in Europe are shown in Exhibit 1.

Exhibit 1

Corporate IT Objectives



Source: INPUT

Increasing dissatisfaction with the business benefits derived from IT investment has been an important characteristic of IT markets over the last ten years. One of the principal manifestations of this has been significant management pressure on in-house IT departments to lower their costs. The data shown in Exhibit 1 demonstrates a new found emphasis on the potential in the application of modern IT systems to deliver significant levels of direct business benefits.

Within the interview sample, conducted in Germany, France and the UK, it was the German executives that demonstrated the highest level of interest in using IT as a lever for competitive advantage. In contrast French executives still showed a greater concern for reducing their organisation's IT expenditure rather than using IT for competitive advantage.

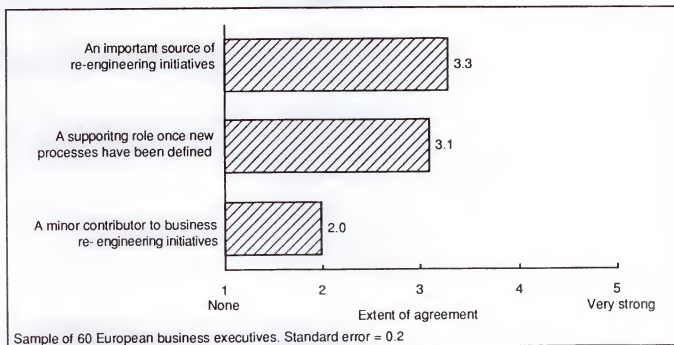
IT Impact on Business Re-engineering Initiatives

Approximately 55% of the European executives interviewed perceived that the IS function had the potential to be an important source of business re-engineering initiatives. On the other hand this view was balanced by the 45% of executives who perceived that information technology itself should not directly influence the nature of business process re-engineering projects. This latter group reflected the opinion that IT products and services and the in-house IS function should only act to facilitate the implementation of new processes once these have been defined.

Exhibit 2 shows the analysis of the overall sample of executive perception of the role played by the application of IT to business re-engineering exercises.

Exhibit 2

Role of Information Technology within Business Re-engineering



Source: INPUT

The research sample indicated significant differences in attitude between the three country markets on these points. In France executives seem to regard IT as inseparable from business process re-engineering. In the UK executives tend to be more dismissive of the role of information technology as a driving force for business re-engineering and regard technology largely as a supporting tool for assisting in the implementation of new processes.

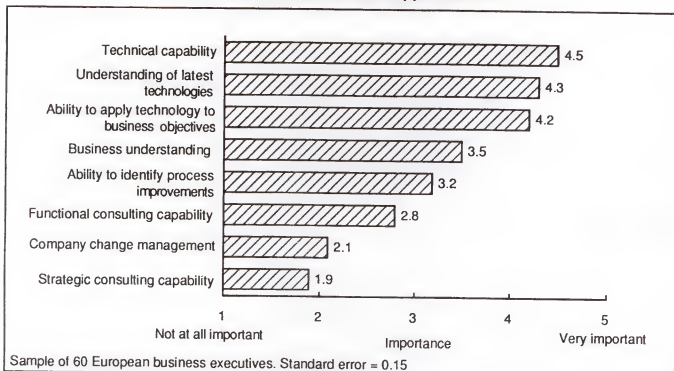
The research sample indicated that business executives expect IT suppliers to be technology experts rather than strategic consultants. Business executive perceptions of the relative importance of the skills required from IT vendors to support re-engineering exercises are shown in Exhibit 3.

Again there exist significant differences between the individual country samples. German executives interviewed expressed a comparatively strong desire for vendors to be able to identify process improvements and to possess functional consulting capability. In contrast the UK executive sample demonstrated their view that responsibility for business process re-design should be separated from the technical IT skills that they look to their IT services vendors to supply. The sample indicated that UK executives require only a very limited understanding of their business from their IT suppliers.

This latter view fits well with some of CSC Index Group's recommendations, that re-engineering needs to be linked to *strategy* and that organisations need to be *ambitious* in their expectations of

Exhibit 3

Perceived Importance of Supplier Skills



Source: INPUT

what could possibly be achieved by a fundamental reappraisal of their business. Consequently the conclusion is drawn that business re-engineering is too important a topic to be left to the IS organisation.

Individual Business Process Improvement

Although there is an overall high level of awareness of BPR amongst European executives, the research sample did indicate that the least knowledge of the topic existed amongst French executives. The most positive attitudes towards the topic were expressed by the German sample. Exhibit 4 shows the sample analysis of the extent to which senior

executives in Europe perceive that business re-engineering can deliver certain potential benefits.

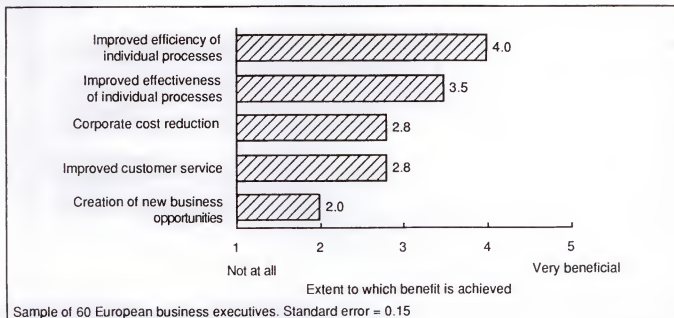
There seemed to be wide spread agreement on the value of the principles of business process re-engineering, but some doubts were expressed regarding the feasibility of translating the principles into practice.

The business benefits of re-engineering are often discussed by management consultants in terms of shortening value chains, reducing product or service lead times and improving customer service.

In Europe, however, BPR appears to be being principally viewed as a means of achieving increased efficiency through cost savings and reduced headcounts in

Exhibit 4

Benefits of Business Re-engineering



Source: INPUT

individual business processes. A consistent theme picked up in this research is that re-engineering should be applied to processes that have a high labour content. Processes that had a major impact on inventory levels were also regarded as good initial targets for the application of re-engineering techniques.

In overall terms European executives reflected in this survey an inward-facing attitude towards the potential benefits of BPR. They demonstrated an expectation that BPR can deliver improved process efficiency internally but that it would

have little impact on delivering improved customer service or in the creation of new business opportunities.

These survey results demonstrate that business process re-engineering is being largely misunderstood since they do not represent the strategic ambition inherent in the basic principles of BPR. Clearly there is a need to break down implementation stages into manageable parts but the starting position needs to be from an ambitious reappraisal of the strategic goals of an organisation.

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Research Bulletin

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Vendor Assessment of SI Project Failure

Measuring the degree to which SI projects actually fail is a difficult task. It is subject to individual perceptions and a desire on the part of the participants to minimise difficulties and present as positive a position as possible to the outside world.

INPUT recently interviewed leading SI vendors in Europe with the objective of analysing the degree to which major projects fail. As a group their responses revealed a frank perspective on the degree to which major projects failed to meet the required criteria of *profitability* or *time scale*. The survey has thus allowed a rational assessment of the issue of failure in SI projects. The survey revealed:

- The obvious difficulty of defining what *failure* of a project means

- Some insights into the way vendors view their failure to achieve planned levels of profitability
- The frequency with which projects overrun their planned time scales.

Defining Project Failure

One definition of failure widely perceived in the market is the ultimate abandonment of the project, or at least from the vendor's perspective that the system is never delivered or that the project is not completed. If this is taken as the criteria then clearly there are very few absolute failures. The London Stock Exchange Taurus project and the London Ambulance Control system are exceptional example of the total abandonment of projects.

In this environment most vendors seem to take the view that they must achieve client satisfaction at all costs. Consequently they continue to invest in projects to achieve a result to protect their name and image and

to attempt to ensure the possibility of on-going revenue streams from that same client. In doing this they are of course significantly impacting their short term planned profitability.

For example one vendor was quoted as saying "we do not have projects which do not meet the client's need", implying that whatever actions necessary, at whatever cost, would be taken to satisfy the client.

Another interesting insight on the definition of *failure* concerned the *business* versus *technical* aspects of large projects. One vendor commented "we have a number of technical successes and business failures in the same project, this is where we gave the customer a *ray gun* when they needed a *pea shooter*". The respondent estimated that as many as one third of all projects fell into this category.

However, given the approach of achieving the project's aims at all costs, at least by the criteria of ultimately satisfying the

client, then the most objective measures of project failure can be defined as:

- *Profitability* from the vendor's perspective
- *Time scale slippage* (and its knock-on economic impact) from the client's perspective.

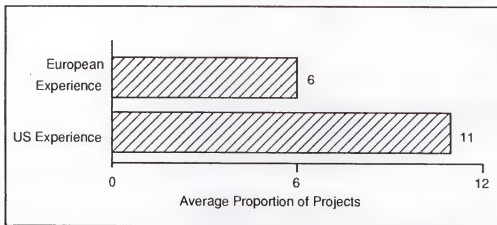
Meeting Planned Profitability Levels

Exhibit 1 provides a summary of the vendor's assessment of lack of profitability as a measurement of project failure.

For comparative purposes this exhibit also includes the results obtained from a similar survey of vendor opinion conducted in the United States. In the US, vendors admit to a significantly higher proportion of project failures. However, it should be born in mind that the assessment of what *failure* actually means varied considerably between different respondents to the survey as has already been pointed out above.

Exhibit 1

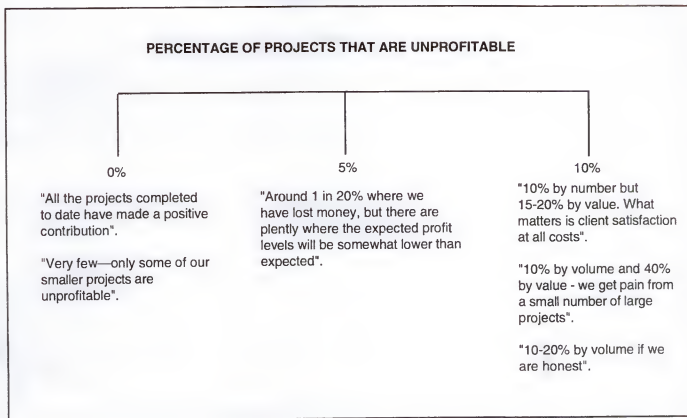
Failure to Reach Break-Even Profitability for Projects—Vendor Assessment



Source: INPUT

Exhibit 2

Vendor Perspectives on Project Profitability



Source: INPUT

Exhibit 2 represents the range of vendor comments regarding project profitability. These indicate some disturbing findings in relation to the overall profitability of SI type business with indications of widespread failure to meet profitability targets. One vendor admitted that it had on a number of occasions placed surplus people on projects in order to keep them occupied, the inclusion of this type of project doubled the percentage of unprofitable projects from 2% to 4%.

Meeting Planned Project Time Scales

Most vendors are realistic in admitting that a significant proportion of all projects overrun the planned time scale to some extent, however they point out that most do not overrun by very much. It is the minority that overrun significantly that are the real problem. The survey results indicated that:

- The overall volume of projects which overrun is pretty high (around 50%)
- About 5% of all projects fall into the extremely late (over one year) category.

Large projects which incur serious time delays are, of course, largely accounted for by the *pioneering* type of project where the *rules* have to be invented.

Vendors signalled that their clear aim must be to continuously reduce the incidence of significant overruns. Towards this end one vendor cited an internal initiative to further define the causes of failure and to devise programmes of awareness and

training for their project managers in order to be better able to cope with project problems.

Additionally this particular vendor indicated that they were also seeking to adopt policies that would help change the behaviour of the clients so that they might be in a better position to understand what could or could not be done over any particular time scale.

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Research Bulletin

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September 1994

Partnership Relationships for I.T. Project Development

The partnership business relationship model has been frequently promoted by vendors of professional services and systems integration (SI) services as an approach to support improved delivery of systems on time and within budget. However, there exists much confusion between the terms *partnership* and *alliance*. The diagram shown as Exhibit 1 identifies the essential difference between these two concepts.

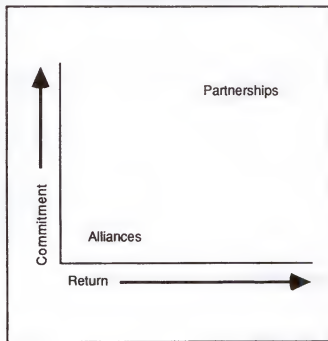
The true implications of the term partnership have been devalued by overuse within the IT industry and its application in inappropriate situations. Consequently, while it is a commonplace for vendors to talk about developing partnerships with their clients, in practice few true partnerships exist and users remain sceptical about vendors true motivations and objectives.

Vendors seeking to benefit from the development of partnerships with their clients for IT project development need to understand the fundamental

management principles underlying the idea of partnership arrangements, the necessity for involvement in the client's business and the need to evaluate the types of partnership arrangements that can be developed.

Exhibit 1

Partnerships vs. Alliances



Source: INPUT

The Partnership Concept

A partnership implies sharing mutually agreed and accepted goals, common commitment of resources to achieve those goals and sharing the inherent risks leading to shared profit or loss resulting from the pursuit of those goals. The principal benefits expected of partnerships are reduced costs, lowered risk and higher revenues.

Exhibit 1 indicates one of the most important principles behind the idea of partnership—that financial returns are commensurate with the contribution and commitment made to the partnership. A true partnership is only possible if both sides trust one another, and in their joint endeavour are open, honest and transparent. They must also be prepared to let their individual performances be measured by the other party.

A number of companies are becoming convinced that this type of strong co-operative relationship between purchasers and suppliers is a far more effective and powerful strategy for mutual benefit and profitability than any adversarial approach can ever be.

However, partnership arrangements are complex and consuming of management time and effort. They require total commitment by purchasers and suppliers to long-term relationships based on trust and on mutually agreed objectives, striving for excellence in terms of capabilities and competitiveness. The benefits to both parties, however, can be considerable.

Instead of, for example, a project development contract being price driven, partnerships provide an opportunity for driving costs down, particularly in situations where hidden costs could be a significant factor. Risk is reduced in long-term relationships through the creation of a common understanding of business requirements. In addition to direct cost savings, partnerships can benefit many other functions within an organisation including the management of quality and marketing.

Commitment to the Client's Business Goals

The central partnership issue for professional services and SI vendors is that longer-term partnership benefits are likely to be derived from greater involvement in the non-IT aspects of the client's business.

Thus vendors express the desire to develop partnership relationships in the expectation of reducing risk through the development of a common understanding of a project's business objectives.

In order to achieve these objectives many vendors need to fundamentally re-assess their marketing approach. Should they remain providers of focused IT-related services or should they extend their capabilities into the related business aspects of the projects for which they bid? Only through facing up to this challenge are they likely to gain the necessary credibility to succeed in forming real partnerships with their clients rather than alliances.

An essential issue vendors need to consider is that their perspective on partnership often conflicts with that of their clients:

- From the vendor viewpoint, the idea of a partnership seems to hold out the promise of sharing risk, thus reducing the risk to themselves
- From the user perspective vendors are insufficiently committed to the overall business objectives and business environment issues relating to project development. Consequently, users are actually expecting vendors to bear more responsibility and risk for the projects in which they are involved.

These user expectations are expressed in Exhibit 1 which implies that increased returns are generally a function of increased commitment. Vendors of IT project contracting services need not only make a commitment to greater involvement in the client's business activity but to also persuade client's of their capabilities and competence to participate in these additional business-related areas.

At the moment there is little evidence to suggest that users demand vendors to take responsibility for business-related aspects such as business process design and functional specifications. This can be largely attributed to the observation that in the European market IT services vendors are viewed as being mainly competent in strictly IT-related areas.

This user perception represents a potential block to the development of a vendor's partnership ambitions unless the client is solely interested in the IT

contribution the vendor can make. Clearly this represents a significant challenge for many IT services firms wishing to address the expected growing opportunities for business integration project partners.

Types of Partnership Arrangements

Vendors wanting to develop a partnership approach to the delivery of SI projects can consider two principal forms of client relationship. One relates to addressing the specific business needs of one client organisation and is likely to develop into an outsourcing relationship. The other approach focuses on the marketing of a jointly developed system to third parties for jointly shared financial returns. In practice partnerships may exhibit features of both these different approaches.

Many of the activities of EDS and CSC could be classified as development partnerships that involve long-term outsourcing commitments to the client. For example, the EDS/KF co-sourcing partnership in Sweden and CSC's relationship with British Home Stores. Andersen Consulting's business process management contracts with BP Exploration, for example, also exhibit this type of partnership characteristic.

Long-term project partnerships, like the examples referred to above, involve outsourcing contracts for applications management and business operations where the higher level of risk is shared within the framework of a service-level agreement.

The second type of partnership approach is characterised by the vendor and client

leveraging the developed system. Further implementations at other third-party sites are driven by a joint marketing effort from which profits can be shared.

The British Airways /Logica Speedwing Logica partnership is an example of such an approach.

A further bulletin Vol. V, No. 14, will discuss this example and other business development partnerships.

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September 1994

Partnership Relationships in Business Integration

Numerous types of vendor/client relationship within development projects and systems integration activities exist across Europe. However, as was argued in a previous research bulletin (Vol. V No. 13), few of these represent real partnerships. Partnership implies significant vendor commitment to another organisation with the hope of significant commensurate rewards where the goals of the project, and its contribution to the enterprise, are achieved.

This bulletin provides a brief description of three partnership type arrangements; those between Logica and British Airways, the Sema Group and British Aerospace and the Real Software Group and Du Pont. These partnerships, although all different, point to the potential benefits of real business commitment on the part of IT professional services firms.

Speedwing Logica

The Speedwing Logica partnership is owned 50% by British Airways and 50%

by Logica. (Speedwing is a sales and support umbrella organisation owned by British Airways.) The partnership was formed in 1990 and has three and half years of operational history to demonstrate that the relationship is working effectively. The organisation now employs 150 people, around 50% of whom came from Logica, 35% from British Airways. The remainder were recruited directly into the organisation.

The Speedwing Logica partnership was formed to sell IT-related products and services, derived from project developments within British Airways, to airlines around the world. The organisation's mission is to provide a system integration service that implements Speedwing Logica airline products to fit the specific needs of clients.

The major benefit for Logica of developing a partnership with British Airways was that many other airlines wished to emulate British Airways' IT systems. Logica represented for British Airways an organisation with a solid reputation

within the IT world that would bring valuable expertise and credibility to this specific market segment.

British Airways foresaw that its IT spending would continue to increase and was therefore keen to see some financial return from the systems and products being developed. British Airways tried to sell its IT systems on its own prior to the set up of Speedwing Logica, but it proved unsuccessful. British Airways reasoned that an IT company partner would bring additional technical credibility to the operation.

Logica was seeking entry into the global airline marketplace and saw the partnership with British Airways as the ideal means of achieving this aim. Indeed, most of the sales leads actually come via British Airways' Speedwing organisation.

Over the last three and a half years, the organisation has seen the needs of the user base become more sophisticated. The driving force from within the airline market place is privatisation which is happening on a world scale with many traditionally state owned operations being propelled down the privatisation route. This results in the airlines requiring new processes and operations, for example, the requirement for detailed revenue accounting.

In the future Speedwing Logica sees major opportunities in the Pacific Rim despite the fact that there are a large number of competitive operations in that area with low cost software development capability.

Speedwing Logica still maintains a strong BA focus which allows the operation to gain expertise in specific projects and to work on solutions prior to replicating them in the open market.

BAeSema

BAeSema is a partnership company set up jointly by British Aerospace (BAe) and the Sema Group. The company comprises approximately 700 people from Sema and about 600 from BAe. This initiative has characteristics of a joint venture between suppliers rather than just being a vendor/customer relationship. The primary market focus of the organisation is the targeting of the defence sector. Currently seventy percent of revenues come from the military market, the remainder coming from the engineering sector.

This partnership represents the union of two suppliers with radically different business cultures and management methods. Consequently there existed a number of distinct issues to be addressed in forming the organisation. The BAe staff were used to dealing with very large long term contracts while in contrast the Sema staff were more oriented towards shorter term projects.

One obvious further variation was the difference in the management information system employed by the two partners. BAe was used to placing primary management focus on the larger picture while the Sema Group demands detailed reporting on day to day operational metrics. This required some changes and compromises in the way information is collected and handled in the company.

Another variance was the relationship with customers. BAE, because of the complexity and funding levels of its contracts, had higher levels of government contacts than their partner. This brought a very significant benefit to Sema in terms of its marketing access to and relationship with the military sector.

The logic of bringing the parties together was entirely to do with the synergy and mutual benefits that could be created. The business idea was that the partnership would take jointly developed products and services to third parties.

The advantages of the partnership are seen as being derived from the backing of two large organisations. They can be summarised as providing access to resources, business practices, training methods and both parents marketing organisations which can provide a considerable degree of leverage.

The drawbacks to the partnership arrangement, apart from the variance in culture and management style which has to be managed, largely relate to customer concern at the level of commitment of the partners. The partnership does not publish financial results and has to utilise the financial reports of the parent companies to demonstrate the viability of the operation. This of course can be misleading.

However it is considered that on balance customers recognise the synergistic benefits of the partnership. Consequently it is considered that the overall advantages of the partnership significantly outweigh the problems that have had to be tackled.

Real Software Group

This joint-venture company was created in July 1989 by Du Pont de Nemours and the Real Software Group. Du Pont is one of the world's leading chemical firms manufacturing in diverse businesses such as fibres, polymers, printing and publishing, agriculture and speciality chemicals. The Real Software Group is a Belgium software development company providing application solutions and software products across a wide variety of technical platforms. Real employs some 320 people of whom 65 are dedicated to the partnership with Du Pont.

The Real Group had been working with Du Pont prior to the establishment of the partnership to support corporate logistic systems based in Geneva, Paris and Brussels. Both parties recognised that the way they were working resulted in heavy overheads and diverse responsibilities.

The formation of a partnership was driven by a desire to achieve a number of specific benefits:

- Improved allocation of resources
- Reduced overheads
- Reduced software development costs
- Shared profits
- Stronger customer focus

From Du Pont's standpoint the partnership offered the additional benefit of a connection to the information services industry that they felt would maintain access to the latest technology and techniques available.

The mission of the partnership is to provide IT application development and on-going support for the Du Pont organisation in Europe. It was envisioned the partnership would enable a reduction in the cost of the supply chain system to Du Pont by \$1.5 million over a five year period, whilst returning an annual pre-tax profit in excess of 14%. The partnership is expected to support functional operations and develop the use of appropriate standards and tools.

Du Pont and Real set out via their partnership to create a company that would have a strong customer focus, that would be revenue rather than cost driven and that would invest in and remain current with state of the art technology.

They also set out to develop with further partners, a portfolio of easy to maintain and simple to adapt software products for use within Du Pont. They reasoned that a partnership would share overheads across a number of customers and thus

deliver significant cost benefits to business units of the Du Pont organisation.

To date the partnership has contributed to Du Pont's fixed costs being driven down by approximately 8% whilst meeting its profit objectives. It has developed an increasing portfolio of products whilst significantly increasing the involvement of Real Software in the information systems activity of Du Pont to an extent greater than that originally envisaged.

Issues that face the future of the partnership include increasing the customer base within Du Pont whilst coming into increasing competition with the internal IS function, moving beyond the Du Pont organisation to seek outside business and a strategic move into the provision of operational outsourcing services.

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Multi-Media Implications for Business Integrators

Multi-media and the associated information superhighway is widely perceived as representing a multi-billion dollar business opportunity. Strategic partnerships, mergers and acquisitions and huge R&D investment budgets are a manifestation of grandiose expectations being promoted for this sector.

This bulletin represents an attempt to drill down through the marketing hype and focus attention on the key opportunity areas for the IT project development industry.

Professional services and system integration (SI) firms need to assess the extent to which multi-media represents real profitable opportunities for project development contracts.

Vendors Need to Address Three Key Questions

Vendors will realise significant leading edge development project opportunities by

- identifying business led applications in early adopting marketplaces
- identifying proven, presently available multi-media technologies
- focusing on strategies which secure both technological skills and access to existing and developing marketplaces

Business Led Applications Will Drive Multi-Media Project Growth For SI Vendors

Many business processes and their enabling applications which have been the source of project services opportunities are being, and will increasingly be, affected and altered by the utilisation of multi-media technologies. Business integrators should focus on early adopting sectors such as financial services, the travel and retail industries and process manufacturing and should adopt suitably pro-active marketing approaches in these market places.

In the banking arena vendors including British Telecom and Oracle are working with a consortium of U.K. and overseas banks to develop 'banking booths' where customers will be able to transact business through video and on-line access to accounts from railway stations and out-of town supermarkets as well as in banks themselves.

In the travel agency business CGS have recently begun shipping Vogue, a multi-media travel agency workstation which enhances a travel agents ability to present details of holiday and travel locations through video and still images, timetables pulled from on-line databases, and on-line booking; all driven through a voice recognition menu system

A number of leading retailers in the Sates and in the U.K. are putting in place multi-media access for in-store use and in opening up home shopping TV channels. Multi-media booths will allow customers to see videos of fashion shows, order clothes, discuss in real-time tailoring alterations and pay through credit card transactions.

Focus on Proven Available Technologies

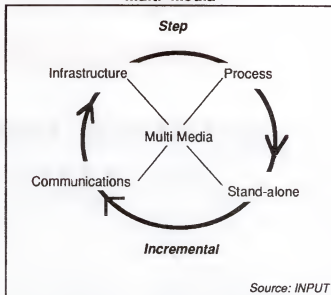
Multi-media technologies are impacting at both the infrastructure and process level. The nature and timescales of impact and subsequent nature of project opportunities for vendors however varies significantly.

Exhibit 1 provides a representation of existing multi-media application activity and suggests that the utilisation of multi-media and it's subsequent impact on business processes will vary across market sectors and will produce a

combination of incremental and step function change.

Exhibit 1

The Application Impact of Multi-Media



Infrastructure

At the infrastructure level network systems integration has been a major source of project opportunities for business integrators. This trend will increase significantly. Projects being carried out under the broad title, *convergence*, are seeing large network carriers such as AT&T, MCI, Sprint, the regional Bell operating companies, and vendors such as IBM, focusing on placing video servers in existing voice and data networks providing fully integrated transport of voice, picture, full motion video and text.

This has implications on the communication capabilities of corporations and the movement of information over LAN's and WAN's but is currently having less influence over actual business processes; available technologies are ahead of the business utilisation curve.

Stand-Alone

On the desktop there are already a number of commonly used multi-media technologies such as CD ROMs.

These are prominently being used as information storage and access tools in a stand-alone capacity, for example in libraries and in filing systems. Technology and utilisation curves are more closely linked here with real business benefits deriving from product utilisation. There are though less opportunities for large project services in these environments.

Communications

Networked multi-media technology is the key to multi-media applications becoming embedded in business processes. Although related to the infrastructure issues mentioned above, and to an extent piggy backing these developments, this is in fact following a different development growth pattern.

Financial services companies are using networked desktop multi-media, comprising text, and full motion video in back office *work/flow* projects to speed and alter claims processing and in supporting office automation projects designed to facilitate increased customer service levels.

A number of manufacturing companies are using multi-media networked between factory floor and component suppliers to enhance production quality and lower development times.

Processes

Networked multi-media environments, primarily at a departmental and inter-departmental level, are beginning to demonstrate real benefits as a result of the realistic utilisation of multi-media. Lowering costs of document management and enhanced capability of document utilisation is changing a number of key support functions in early adopting companies.

The use of proven multi-media technologies by business integrators in mission critical processes will drive real growth in project services opportunities resulting from multi-media.

Vendors Need to Secure Multi-Media Skills and Access to Market

The pace of multi-media technology uptake over the short to medium term will be significant. Business integrators are well placed, due to their prime contractor and project management skills, to gain an important share of the multi-media implementation market.

However integrators will only be able to leverage their traditional skill sets if these are allied to expertise and experience of emerging technologies. Integrators should be tracking multi-media development in both well established companies, such as Reuters, Oracle, and IBM, and small start-ups, many operating at the fringe of existing traditional IT markets. It is important that systems integration vendors gain early access to multi-media technologies via alliances, partnerships, and acquisitions.

Although the limits of multi-media's capabilities are still beyond the interest horizon of many, the future shape of the delivery side of the market is presently being determined. *Convergence* is driving frenzied merger, acquisition and alliance activity that is currently altering the shape of the large project service market. Service vendors need to be aware of the implications of these developments on their access to both traditional and new marketplaces.

The widespread hype and resulting confusion that multi-media has aroused is based both on a mistaken desire to identify a tangible 'multi-media industry', and a failure to discern differences between potential applications in the long term and realistic applications available and being implemented now. SI vendors should be aware of the opportunities and threats that multi-media present.

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Benefits of Business Process Reengineering are Obscured by Marketplace Confusion

BPR is undoubtedly important to the BI community as BPR projects in almost all cases lead on to IT projects, and in many cases are one in the same thing. Whilst there are many BPR converts preaching to the potential client base, vendors of BPR must be aware of the dangers of devaluing BPR through injudicious and inappropriate use.

The term Business Process Reengineering (BPR) has now been a common part of business terminology for almost five years. Although as jargon and as a concept many people are familiar with BPR, there is still widespread confusion as to exactly what it is, what it means to vendors of integration services, and what it can deliver.

This bulletin traces the development of BPR, examines its different flavours, and advises business integration (BI) vendors to adopt a cautious approach towards marketing a BPR capability.

Part of the confusion surrounding BPR is as a result of the very many different flavours of BPR being marketed by professional services vendors. These range from the position that

BPR means radical enterprise-wide change to the view from vendors, such as McKinsey and EDS, that BPR is nothing but a new name for their traditional service offering.

The other element of this confusion stems from the unsubstantiated body of case study evidence available independently to support the claims of BPR, and the unwillingness of BPR vendors to provide illustrations of real business benefit.

Many Different Flavours of BPR

The 1990 Harvard Business Review article, "Don't Automate, Obliterate", by Hammer and Champy, which was the first major public airing of the philosophy behind BPR, put forward three main arguments. BPR was:

- *fundamental*; "why do we do things this way?"
- *radical*; rip it up and start again
- *quantum leap*; continuous improvement is not enough

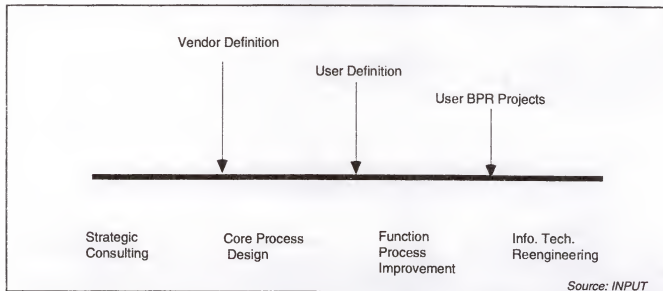
The "Three R's": Re-design; Re-tool; and Re-orchestrate, was a bold, powerful, and highly successful argument which created shock waves throughout the consulting and blue-chip community.

Five years later every professional service has their own version of BPR. These range from the Hammer and Champy lookalikes (Gemini, Coopers & Lybrand's "Breakpoint BPR") to the BPR is nothing other than business as usual view (EDS, McKinsey).

These vendors have questioned the feasibility of radical change in large multinational organisations and prefer to propose the evolutionary rather than revolutionary viewpoint.

Exhibit 1

BPR Definition Gap



In these various changing market conditions BPR has been seized upon as a way of potentially driving the enterprise forward. In the large project services environment, BPR has been recognised as important as all BPR requires significant change in IT; in architectures, platforms, applications and solutions.

This more sceptical position has been boosted by the emergence of statistics suggesting that 50-70% of re-engineering fails to achieve its stated goals. The BPR evangelists have countered this view in turn by saying that only 5% of so-called BPR assignments are in fact *real* Hammer and Champy defined BPR. The other 95% is just consulting.

Behind the Semantics, Real Issues

Clearly amongst all the confusion and semantics and differences in definition (see Exhibit 1) many companies are engaging in serious thinking about the nature of their enterprise and the markets they trade in. The increasing pace of economic and technological change is forcing companies in many different sectors to address fundamental questions.

Some BI vendors, recognising the importance of these developments, have attempted to position a BPR capability at the head of their service offering. This has been only a partially successful strategy.

BPR is a board-level issue and few BI vendors have board-level access. Indeed in many cases

IT is seen as a key defender of the status quo and hence the problems BPR is attempting to address.

BI vendors struggle to influence the driving issues of BPR from a "top down" view. Few BI vendors are in a position to offer enterprise-wide BPR as a credible service offering. Those who do are inviting incredulity and, at worse, real project disaster.

There is a growing body of evidence supporting the claims of BPR vendors.

However, few of these examples offer enough proof in business-driven, P&L terms, to suggest that the BPR case is proven. BI vendors should readdress the scope of their BPR offering, carefully delineate areas of expertise and competency, and be careful not to devalue BPR and the benefits of BPR to the BI community, by putting forward grandiose unrealistic claims, and promising undeliverable benefits.

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Research Bulletin

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October 1994

Consultancy Services Vendors Seek Competitive Positions on the Unravelling Project Services Value Chain

Management consultancy, long the commanding heights of the system development value chain, is extending its influence over all aspects of project delivery. Recognition of this has led to the marketplace becoming crowded with vendors from outside of the traditional professional services vendor base.

Users are at the same time becoming more sophisticated in using consultancy and more demanding in seeking genuine, demonstrable expertise and experience.

The increasing importance of consultancy, coupled with aggressive competition and rising user expectation, is placing vendors of consultancy under enormous pressure to identify points on the project services value chain where they can compete effectively and profitably.

This bulletin will discuss ways in which vendors can respond to these pressures and suggests that careful market positioning is becoming a key critical success factor to project services companies.

The Rise of Business Focused Management

The role of management consultancy in the IT arena has increased dramatically in importance over the last five years. This is a result of the seeming paradox that although IT has never been more important to the enterprise, IT is widely perceived to have failed the enterprise.

This paradox has created a perfect breeding ground for the large traditional accountancy-based management consultants to bring to bear their strengths in business experience and management.

This has placed management consultants in an extremely influential position in the systems development and integration life cycle. Advising and consulting to senior management on project aims, methods, and vendor selection has proved a profitable business. Some consultancies, most notably Andersen Consulting, have moved aggressively into implementation as well as

extending their role into all aspects of the system life cycle.

System houses and integrators, recognising the importance of these developments, have been attempting to fight back against the management consultants by developing, through growth or acquisition, their own consultancy practices. They have been joined in these efforts by the evolving equipment manufacture's who, in their efforts to metamorphose into service providers, have also recognised the need to have a seat at the top table.

In some ways these new entrants have been successful. Developments in technology, such as distributed computing, have allowed technology-led companies to claim that with lessons learnt, and a new understanding of the business requirements to the forefront, they understand both business and technology; and the management of technology better than the traditional management consultants.

Proven Solutions are the Differentiator

These dynamics in an increasingly crowded marketplace are taking place against a backdrop that is witnessing purchasers of consulting becoming more seasoned, sophisticated, and sceptical, having in many cases been through at times painful and expensive learning curves. Users are now demanding real, quantifiable expertise and experience.

Users are now seeking consultancies that have definable experience in vertical markets, specific technologies, in delivering proven solutions and providing bottom-line benefits. General jack-of-all-trades consultancy is no longer the option it once was. The rise of

business reengineering has accentuated these trends.

Value Point Rationalisation is Essential

Consultancy vendors are thus under increasing pressure to identify positions in the marketplace where they can compete effectively and profitably. Vendors must carefully analyse skill sets, statements of experience, and leverage in their customer base, to determine, and then market aggressively, the strengths of their service offering.

The proposition which vendors must market is that, "we can do this (whatever it may be and wherever it may be placed on the value chain) better than anyone else".

There are very few vendors, if any, in the business integration value chain, who will be able to claim that they can do everything better than anyone else.

The business integration market is rapidly echoing the experience of the old-style hardware computer industry. New markets, technologies, and players led to the demise of the monolithic providers of everything. The construction industry perhaps provides one model of the disintegration of the value chain with its well-established pattern of clearly defined specialisation and sub-contracting. McKinsey's use of the telebanking technology specialist, Early Cloud, is a clear example of value point rationalisation in the IT project services industry.

Vendors of project services should be aware of these developments, and the need to assess their relative competitive strengths in all aspects of project development and delivery.

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Research Bulletin

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Service Branding—Key Issue for Business Integration Vendors

Vendors of Business Integration (BI) services are increasingly becoming aware of the need to adopt consistent, clear, and understandable messages when marketing their service portfolios.

This realisation is as relevant to long-established IT services companies as it is to vendors who are recognised by the marketplace as being traditionally from outside the service arena.

This research bulletin discusses the steps that a number of vendors have taken in developing marketing messages focusing on their service offering and in particular on EDS's initiatives to actively build and establish a brand which is not just recognised but preferred by customers around the world.

Services Marketing is Maturing

IT services companies have begun to realise, many with a great deal of shock, how immature their marketing strategies and tactics have historically been, relative to other commercial product and service providers.

Few IT companies have been marketing led in the way that companies in the wholesale financial services or telecommunication

sectors have been. Even fewer IT *services* companies have been marketing led.

As the growth and profitability of the IT industry has become centred on services, the need to professionally market more complicated messages than merely input/output speeds, or memory capabilities, has become key.

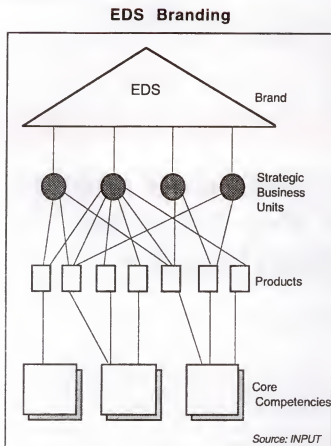
Marketeers have begun to look to lessons that have been learnt in other sectors and much of this advertising, branding, and communication experience is starting to filter through into the IT world.

EDS Establishes a Global Brand

EDS have undertaken a worldwide exercise to capitalise on its position as the world's largest IT services vendor.

EDS, with revenues of \$8.5bn in 1993 are ranked well ahead of companies such as Apple, Compaq, and Microsoft as a global company. However, as a brand they clearly languish a long way short of companies like Apple and Microsoft who, in many ways, are household names.

Exhibit 1



Alan Stevens, Director of Global Sales Leadership at EDS, has been responsible for driving the establishment of a single banner brand that encompasses all of EDS's offering across all territories. Stevens has stated that the drive was based on the realisation that an established market dominance would be strengthened further by a powerful brand, and that branding was a necessity in developing international business.

This need was especially important to EDS as through its growth via acquisition and outsourcing contracts, the company was an

amalgam of many different cultures, styles, and operating methods. Acquired companies like SD-Scicon in the UK and GFI in France were originally known as EDS Scicon and EDS-GFI but have, after a period of grace, simply become known under the overall branding of EDS.

Brands Filter Complicated Messages

The importance of branding to the IT services community is that branding attempts to convey an enormous amount of complicated information in a simple understandable way.

As many IT vendors make the transition from being purely equipment suppliers to being service and *solution* providers there has been, and indeed still is, the potential that customers and potential customers misunderstand what it is that vendors offer.

Bull have recognised this concern as it has attempted to move from being what it openly described as, "an ailing hardware manufacturer", to a recognised leading European systems integration firm. Bull's stated mission as part of the 1991 initiative *Horizon 95* was to become a top-five system integration vendor by 1995.

Marketing has played an extremely influential part in making this transition and has focused on communicating a core branding proposition that Bull help clients "translate" between "business" and "operation". In other terms that Bull can act as a bridge between the different cultures, language, and expectations of IT and non-IT staff.

Exhibit 2

Leading Systems Integration Vendors—Europe, 1993

Rank	Company	Estimated Market Share (%)	1993 Estimated Revenue (\$m)
1	IBM	20	800
2	Andersen Consulting	10	430
3	Cap Gemini Sogeti	8	335
4	Digital	6	250
5=	Groupe Bull	5	220
5=	ICL	5	220
5=	EDS	5	220
8	Sema Group	5	185
9	Siemens Nixdorf/Sietec Consulting	4	155
10	Logica	3	120
	Total listed	72	2935
	Total market	100	4100

Source: INPUT

This central thrust has been underpinned by: promotion and pricing initiatives; moves to forge partnerships with other vendors and with users; and the development of MOSIC (Management of System Integration Contracts), a proprietary management methodology which Bull claim differentiates them in the marketplace.

However, Bull still concedes that its brand is not as clear as many of its competitors and

that there is still a good deal of work to be done in reinforcing the marketplace's perception of the *new Bull*.

Brands have come to be recognised as one of the most valuable assets a company owns. Building a brand supports the long-term success of a company. Markets may change and companies offerings may change but a well-understood brand adds value to whatever the vendor offers.

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Research Bulletin

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Human Resource Management is Key to Success in Distributed Integration Projects

Distributed integration projects are drawing vendors of systems integration services closer to business users and most importantly to business decision makers in client organisations.

However, this growing visibility for business integration (BI) vendors, moving from the "glasshouse" to the office, offers both opportunities and threats; the opportunity to extend the value-added component of systems integration (SI) projects, and the threat of failing to meet rising business-user expectations.

Vendors need to carefully examine the skill profiles of their professional staff, optimally manage this human resource in client engagements, and invest in training aimed at exploiting these opportunities. Rewards and requirements, intrinsically linked in the "new" IT world, are simultaneously becoming greater.

This bulletin discusses these threats and opportunities and focuses on initiatives by two vendors, Cap Gemini Sogetti and Groupe Bull, to develop models aimed at delivering both business and technical skills to distributed

integration projects and to gain increased leverage from their enhanced enterprise-wide presence.

Development Focused on Areas of Key Business Value

Businesses, and their IT operations, are becoming increasingly focused on areas which deliver the most direct value to the business. This is being reflected in the dynamics driving the use of SI as demonstrated in Exhibit 1.

Exhibit 1

Driving Forces Justifying SI Usage

Driving Force	Relative Importance
Increased revenue	4.1
Increased service	4.0
Improved quality	4.0
Support for restructuring	3.8
Revision of IT strategy	3.5

Source: INPUT

This is coupled with the growing trend to merge information systems (IS) with information management functions outside the confines of the IS department.

IS roles and structures are integrating with line functions such as logistics, order processing, and customer service, as a result of more than a mere decentralisation of IT personnel into the business.

Information based work is increasingly being "stitched" into system-based work. The, at times, artificial distinctions between system builders, support services, and users are being discarded.

These dynamics are, and will continue to be, supported by large scale client/server

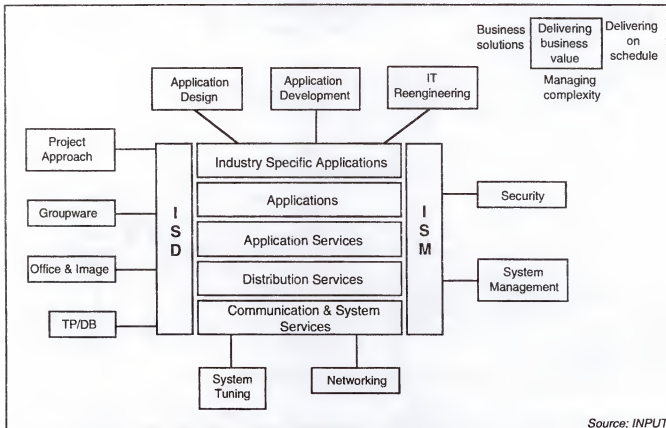
integration projects, as widely reported in previous INPUT bulletins and reports. Vendors are undoubtedly finding themselves "deeper" in their client's organisations, dealing with technology-literate, enabled and competent users, as well as with IT personnel from traditional domains.

Groupe Bull Develop Desktop Integration Capability

Groupe Bull were one of the earliest vendors to embrace the concept of open systems and distributed computing. The Distributed Computing Model (DCM) has, since 1991, formed the cornerstone of Bull's product strategy but is now playing the same conceptual role for Bull's service strategy.

Exhibit 2

Groupe Bull's Distributed Computing Model



Source: INPUT

Exhibit 2 presents a graphic of DCM including the most recently announced component, Integrated System Management (ISM), a framework for integrating platform independent methods, tools, and techniques.

Bull's SI strategy is explicitly focusing on gaining leverage though building on the horizontal domains in DCM, channelling business process led, and other professional skills through this route into client engagements, and identifying and converting future possible engagements.

Bull's Management of Systems Integration Contracts (MOSIC) methodology, devised to guide delivery throughout the complete project life cycle and complementing DCM, has a "new opportunities" component which attempts to develop existing contracts and link

Exhibit 3

them to other elements of Bull's professional services capability.

Cap Gemini Sogetti Stress the Role of User Empowered Systems Development

The thrust of CGS's systems development strategy similarly reflects the increased role and importance of end-users and recognises the raised visibility that IT, and clearly by implication, IT vendors will have in, as CGS have labelled it, the "new world of IT".

CGS suggest four rules for the maximum leverage of IT technologies which address increasing segmentation within the homogeneous term "the buyer" and the implications of this fragmentation in distributed systems implementation.

CGS's Life Cycle x Type of Buyer Segmentation

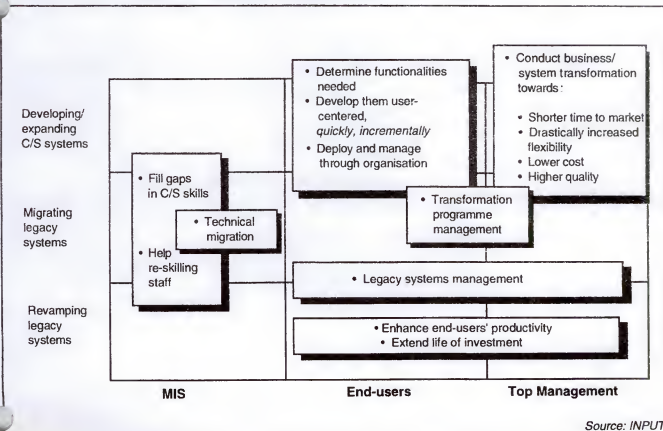


Exhibit 3 shows the altering environment of project delivery and the changing requirements necessary to win and deliver projects in organisations with closely-linked "system" and "information", architectures emphasising human-centred, end-user empowering systems, developed in short industrialised, constantly renewing life-cycles.

The demonstrable ability to produce flexible, low-cost, high-quality systems is already a key

differentiator for BI vendors. End-user empowerment increases the stakes of systems development and gives vendors, through increased exposure to decision makers, the potential for exploiting this increased leverage. Exploiting this leverage however, requires an ability to address the business on the business's terms.

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Research Bulletin

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European Business Integration (BI) Market Growth Weakens

The optimism expressed in 1993, and reflected in last year's Systems Integration Market Europe 1993-1998 report, that the end of the recession would signal an immediate beginning of a new period of significant and sustainable growth in the systems integration (SI) marketplace has proved premature.

Last year's estimate of the size of the European SI market for 1993 was \$4,760m. INPUT's view, recently published in the Systems Integration Market 1994-1999 report, is that the market is worth \$4,100m. This represents just under 13% growth on 1992 in local currency terms (1% in dollar terms) rather than the forecast 17% growth.

INPUT has as a result of this weaker growth, and following a series of discussions with major integration vendors, undertaken a thorough re-evaluation of the SI marketplace and its prospects over the short to medium term. The result of this is that INPUT is adopting a more cautious view of growth over the next five years. INPUT predict a five-year

compound annual growth rate over 1994-1999 of 12%.

Last year's over-optimistic views represented both a realistic reaction to the fact that the worst period of the worldwide recession was over but also perhaps reflected an element of vendors "talking up" the market and attempting to "kick start" an upward spiral of growth.

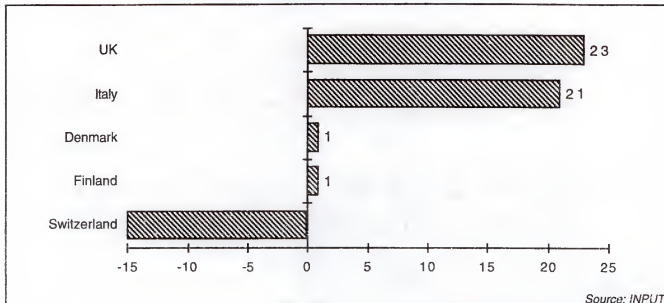
This was an understandable reaction to emerging green shoots of recovery. 1993 has, however, clearly witnessed those green shoots struggling to establish themselves and would suggest that there is possibly not as much pent-up user demand for development projects as was expected.

Patchy Recovery Across Europe

This readjustment in growth forecasts is as a result of the patchwork quality of recovery in the project services environment across Europe. The range of growth in different country markets is shown in Exhibit 1.

Exhibit 1

1993 Highest and Lowest Growth Rates (%)



Some country markets are clearly beginning to experience extremely healthy rates of growth. Both the UK and Italy have enjoyed 20% plus rates. The overall European numbers are being anchored however by static growth, at best, in countries such as Denmark and Finland and decline in the Swiss market.

Of all the country markets the UK performed closest to anticipated levels, falling just one per cent short of last year's forecast.

In the other major countries Germany and France, the picture is less encouraging. Germany under-performed in relation to last year's estimates by 18%; France by 22%.

Eastern Europe, flagged in last year's market report, as being a high growth opportunity continues to be a significant area for vendors. It is clear, however, that rates have failed to quite live up to expectations. Concentration on the former Iron Curtain countries has also arguably had a knock-on effect on the overall rate in Germany reported above.

Industry Sector Analysis Shows Changing Shape of the Market

There are some clear and interesting messages emerging in the profile of the marketplace and in terms of sectors currently enjoying growth. Some sectors which have traditionally been areas of high IT investment are still far from replicating historic spending patterns. This is observable in "high installed base" sectors such as financial services and parts of the public sector.

Other sectors, like utilities, have seen the beginning of stagnation in growth, signalling the end of the post-privatisation investment boom.

The much heralded and reported developments in the telecommunications sector are reflected in the second highest growth rate of 33%. De-regulation, increased competition, infrastructure renewal, and emerging technologies is driving, from a still relatively low base figure, rates of growth, which undoubtedly will be even stronger over the short to medium term.

IBM and Andersen Consulting Extend Dominance in the Marketplace

The total listed market has grown in local currency terms by 17%. Change in the dollar conversion rate however has depressed this figure by 12%, giving 5% growth in dollar terms over last year.

In keeping with 1993 as a year of consolidation, there are few surprises in an analysis of the leading pan-European vendors and their market shares.

IBM has increased its position of leadership by two per cent. Together with Andersen

Exhibit 2

Consulting their dominance of the market is slowly being extended and the two major players now control over 40% of the listed systems integration market.

ICL have moved from equal eighth to equal fifth with Groupe Bull, thanks largely to revenues from the CHOTS project coming on stream.

There is little overall dramatic change from last year in the split between professional services vendors and the "evolving" equipment vendors. This remains at 45% and 55% respectively.

Leading Systems Integration Vendors – Europe, 1993

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	Total listed	72	2,935
	Total market	100	4,100

Source: INPUT

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Research Bulletin

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Vol. V, No. 21

December 1994

Alliances–Key to Success in Multimedia Business Integration

Research amongst leading European vendors of Business Integration (BI) services into their views of multimedia, and plans to offer related services suggests, that vendors:

- Are sceptical of the extent to which they can leverage service based opportunities from these new technologies
- Are taking a circumspect view of the need to form, or participate in, multimedia related joint-ventures or alliances
- Are at an early stage of developing service portfolios related to multimedia .

However developments over the next two years, shaping the supply side of the marketplace in the *second wave* of multimedia, will be the key to large-scale market adoption. INPUT advises vendors of BI services to:

- Explore alliance opportunities with non-IS based market entrants in *converging* marketplaces
- Be aware of the danger of remaining complacent in formulating strategy and

tactics for this *second wave* of multimedia development.

Beyond the Backlash

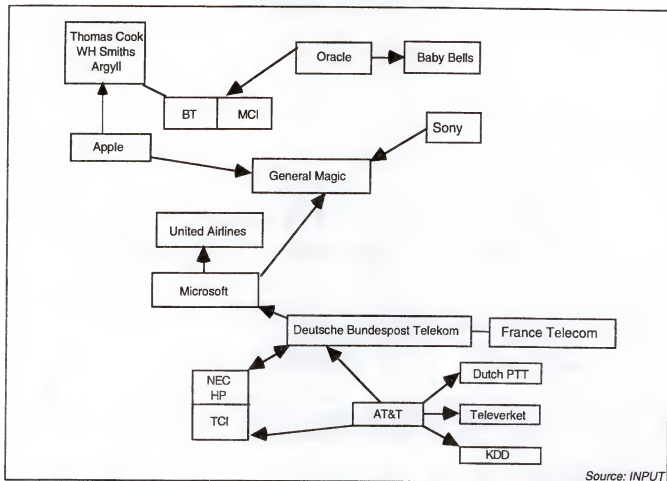
Late 1994 marks the end of the "first wave" of multimedia development. The deluge of media interest in multimedia over the last 18 months has now been replaced by a negative reaction against it. This understandable and not unexpected development is as a result of the reality of multimedia having been found wanting.

Research and development costs, it has become clear, are prohibitively high. Revenues generated by multimedia are still extremely small and the timeline for significant marketplace adoption of technologies other than CD-Roms is the medium to long term.

However, developments in multimedia, both from a technological point of view, and in terms of technology utilisation will not cease, with the media's spotlight moving elsewhere.

Exhibit 1

Multimedia Alliances Map



Source: INPUT

Three Key Alliances

Exhibit 1 provides a mapping of some of the major alliances and relationships forming in response to multimedia development.

The alliance map is complex and shows no signs of becoming less so. The high level of merger and acquisition activity, and perhaps more importantly, of partnering activity, is being driven by the complexities of many of the issues involved in developing and bringing multimedia technologies to market.

Exhibit 2 presents a summary of Exhibit 1, drawing out three key alliances which are emerging within the market's supply side, and highlighting the leading players within these powerful alliances.

Exhibit 2

Three Major Multimedia Groupings

Microsoft	NEC
	Hewlett Packard
	Deutsche Bundespost Telekom
	General Magic
British Telecom	MCI
	Oracle
	Apple
Oracle	British Telecom
	Baby Bells

Source: INPUT

Microsoft

Microsoft is attempting to leverage its strength on the desktop into the "new" desktop and home-based multimedia market. Microsoft are joint-venturing with Deutsche Bundespost Telekom, Hewlett Packard, and NEC on the development of video server software presently named "Tiger"—a Windows based system for the operation of television-based decoder boxes. This systems will allow ordinary televisions to be used for interactive games and interactive home shopping.

Microsoft are also developing "Mmosa", multimedia Operating System Architecture, in conjunction with a small US-based equipment manufacturer, Integrated Systems, for tests of interactive television being run by the large US network operator TCI on the West Coast of America.

Involvement with TCI has brought Microsoft into development contact with General Magic, the Apple/Sony/Phillips owned development company, and with AT&T.

General Magic are developing "electronic agents" or "digital assistant" programs which will extract information from networked electronic databases according to a users interest sets, and refine that interest set through a "learning interaction" with the user.

AT&T, in conjunction with TCI, are establishing PersonaLink, a system within their managed network which allows for the utilisation of these networks.

Microsoft are also developing this technology to be utilised on Marvel, their soon to be launched on-line information database.

British Telecommunications

British Telecom are at present arguably the most active telecommunications player in the worldwide multimedia market. Unarguably they are the most active in Europe.

This interest in multimedia-related development is being driven by a realisation that multimedia offers the company the opportunity to fulfil its ambitions of becoming a leading worldwide information services provider, firmly establishing itself outside of its historical national market and historical role of purely being a telephone carrier.

In head-to-head confrontation with the leading American Telcos, BT must be able to compete aggressively in the next wave of deregulated market maturity which multimedia represents.

BT's much heralded postponement until mid-1995, at the earliest, of large scale interactive TV trials, is a serious blow. However, placed in the context of postponed trials by, amongst others, Time Warner in the US, BT's set back looks perhaps less concerning.

BT are closely allied in the 1995 trials to one of AT&T's major rivals, MCI, and will be utilising both hardware and software, jointly developed with Apple, Oracle, nCube and Alcatel-Alstom.

Oracle

Oracle are the driving force behind the Desktop Alliance which has as partners not only BT but many of the leading US-based Baby Bells who are aggressively playing in US markets and increasingly in Europe.

In a manner similar to Microsoft, Oracle are attempting to extend their dominance of the systems database market into, what they consider is the complimentary offering of video servers and management systems for the large databases needed for applications such as video-on-demand.

"Killer" Applications will be Delivered by New Market Entrants

One of the most important developments in the *second wave* of multimedia development is

the increasing role and importance of vendors from content and distribution backgrounds on the supply-side of the marketplace. Exhibit 3 demonstrates the diversity in background of these new players.

Exhibit 3

New Multimedia Market Entrants

Sector	Company
Publishing	Reed Elsevier
	Daily Telegraph Group
	Bertlesmann
	Associated Newspapers
Broadcasting	British Broadcasting Corporation
	Canal +
	News International
Retail	Thomas Cook
	WH Smith
	Argyll
Airlines	Virgin
	United Airlines
	British Airways

Source: INPUT

INPUT believes that these new market entrants will be the significant force in driving the growth of the marketplace in the medium term. It is amongst the content, in the shape of television programmes, interactive activities and home shopping, being distributed through multimedia channels that the still unidentified "killer applications" will emerge, and subsequently drive mass-market adoption.

Reed Elsevier, with their recent takeover of the US-based publisher, Mead Corporation, are now one of the leading international publishers. They have recently expressed the

aim of generating 50% of revenues through electronic publishing. The strength of their content and the power of their brands, i.e. their magazines and books, provide them with extremely powerful collateral. The Readers Digest publishing group are using their collateral to develop electronic versions of their magazine with Microsoft.

The same logic applies to the British Broadcasting Corporation, now offering their own bulletin boards and access channels to the Internet. Many of the major news publishers such as News International and the Daily Telegraph group are offering on-line versions of their daily papers. These developments offer "added-value" service opportunities to be provided from this base service offering.

In the retail sector major players such as WH Smith, Argyll, and Thomas Cook are participating with British Telecom to explore avenues of offering on-line shopping, ordering and delivery of goods.

In the airline industry, Virgin, United Airlines, and British Airways, are all exploring on-board on-line services and other multimedia services.

BI vendors who have been cautious in their approach to joint-venturing and partnering in the early stages of multimedia should carefully study opportunities to become more aggressively involved with these business, and process-orientated, non-technology led players. Service opportunities will exist around the delivery of these new forms of content.

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Research Bulletin

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December 1994

Senior Management Consultants Migrate

Business Integrator's increasing requirement for business consulting skills has lead to a period of intensive recruitment from audit-based management consultants.

However, as Digital Equipment Corporation's recent experience has demonstrated, this policy produces serious challenges in attempting to forge a new enterprise-wide culture from the disparate styles of aggressive, high-profile new recruits.

INPUT believe that those vendors who can negotiate this period of change successfully will be subsequently well positioned to:

- Clearly differentiate their reshaped and enhanced service offering in the marketplace
- Gain leverage from their own experience of change in future client engagements.

Industry Figures on the Move

Recent months have witnessed a noticeable and significant trend in the movement of high

profile personnel from Big Six management consultancies to vendors of business integration (BI) services, as summarised in Exhibit 1.

Business consulting skills have been highly sought for some time by equipment manufacturers, system integrators, and software houses.

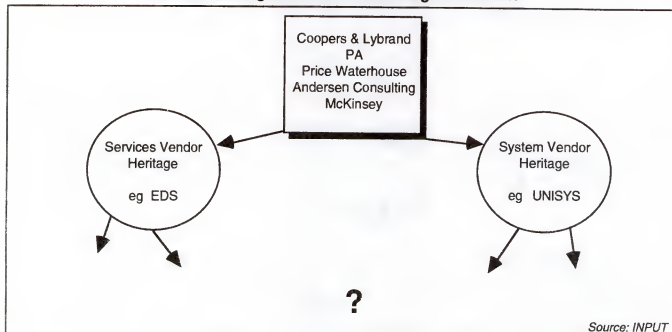
However, these moves suggest that BI vendors are pursuing a more strategic agenda than the occasional tactical hire of a suitable, available consultant.

Perhaps the most high profile of these recent moves has been that of John Pendlebury's to EDS. Pendlebury, a long-term executive partner at Coopers & Lybrand, has been brought in by EDS to run its European consulting practice, which has grown over the last nine months to around 400 people.

Pendlebury has already been followed by a number of less senior, but highly experienced, consultants from Coopers' IT consulting division.

Exhibit 1

Senior Management Consultant Migration Paths



These European developments are a part of a worldwide development. EDS have also made important hires from Andersen Consulting, McKinsey, and Arthur D. Little (ADL). Bryam Johnston from Andersen's has been recruited to run EDS's Asia Pacific interests; Andrew Power, ex-McKinsey, is establishing a market-leading vertical presence in healthcare and insurance; two dozen ADL aerospace industry consultants have also recently been recruited.

EDS' change in management and business re-engineering competencies are headed by ex-Gemini Consulting partners. Communications is run by an ex-Deloitte & Touche partner, and the consumer goods practice by a former senior Price Waterhouse partner.

These developments at EDS are echoed by those at Unisys where the ex-head of Coopers' consulting operations, Malcolm Coster, is now running Unisys Europe and Africa.

Coster has recently hired another senior Coopers partner, Winston Muktarsingh, and has been active in making other senior hires from PA Consulting, Ernst & Young, and Price Waterhouse, to support the 'Customerize' initiative, which is now the foundation stone of the delivery of all business integration services.

Other BI vendors, such as ICL and SHL Sytemhouse, are also examining opportunities to undertake similar recruitment activity; ICL as part of an overall re-assessment of skills requirements within their professional services operations, and SHL as part of a strategic movement to substantially expand their European business.

The Resulting Culture Clash

Recent developments at DEC provide perhaps the clearest evidence that the strategic vision EDS, Unisys, ICL, and SHL are pursuing is awash with potential tactical problems.

Gresh Brebach's departure from DEC in June 1994 illustrates that the complex and often widely misunderstood issue of culture is of crucial significance in the transformation of organisations. Issues of culture are at the crux of all people businesses.

Brebach, who was hired in April 1993 (see Business Integration Programme - Europe, Research Bulletin Volume IV, Number 10) to run DEC's worldwide systems integration and professional services business, was an extremely strong candidate to push DEC through the painful transition of becoming a predominately services orientated company.

Ex-Andersen and McKinsey, Brebach's recruitment signalled DEC's commitment to the aim of helping their clients to utilise technology for the sake of the business, rather than for the sake of utilising technology.

The fact that Brebach was unsuccessful in fulfilling his remit is illustrative of the power of ingrained culture, and the difficulty of changing it, even where there is senior executive commitment.

Change in any sphere, be it operational or strategic, is a long-term exercise which brings dislocation, pain and self-doubt. Changing culture increases these experiences by a factor of ten.

The large management consultancies have themselves undergone much of the pain of cultural change, driven by the pre-recessionary drive for market share, which led to the merger that formed KPMG Peat Marwick, and the mega merger between Coopers & Lybrand and Deloitte Haskins & Sells. KPMG's experience and that at the now renamed Coopers & Lybrand (after a brief time as Coopers & Lybrand Deloitte) demonstrates that there are many casualties of often bitter and intense restructuring attempts to derive a new culture from two existing ones.

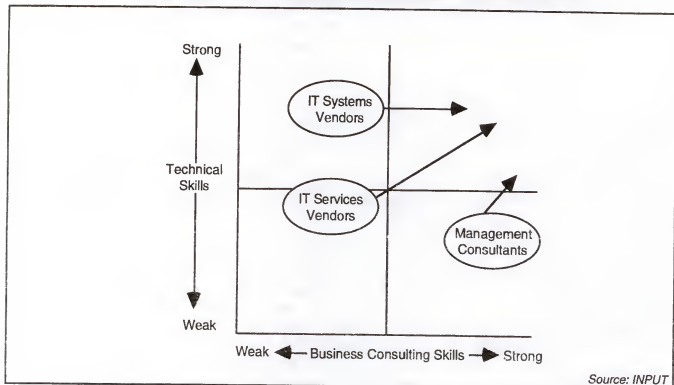
Whether the moves made by EDS and Unisys are successful remains to be seen. EDS will for some time be a melting pot of management consultancy cultures. Either a hybrid EDS culture, distinct, robust, and marketable, will emerge, or the differences will lead to a difficult period of internal struggle in which focus on the marketplace will be undermined and the very advantages of the exercise will be lost.

New Cultures will Offer Marketplace Opportunities

Success in this period will offer BI vendors a clear differentiation opportunity in the marketplace, as shown in Exhibit 2.

Exhibit 2

Current and Future Positioning of BI Vendors Skill Profiles



Technical-based BI vendors, with enhanced and revamped business consulting skills, especially in the *soft* areas of change management, will be well positioned to help their clients introduce and manage new emerging technologies and management approaches.

The market proposition of business enabling technology will be a powerful message in the

increasingly business-conscious environment, but an environment that is still technology driven.

The other key gain vendors will achieve is the ability to leverage, from reference through to delivery, their own experience of undergoing and benefiting from change.

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Research Bulletin

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1995

Evolving Equipment Vendors Maintain Leadership in “Open” Technology Markets

“Open” technologies have, in a relatively short period of time, become a *de facto* requirement in the development, operation, and integration of business systems.

However, real vendor independence and its corollary of broader marketplace competition, have not occurred. The leading vendors in the marketplace remain the same as those in *pre-open* times.

This bulletin discusses these key user expectations and the drivers behind the growth of open platforms, placing them in the context of the need for systems integration vendors to:

- Compete in the wider overall European Business Integration (BI) marketplace (For an overview of this market please refer to Business Integration Research Bulletin - Vol V, No.24)
- Develop their *open* services capability in the face of diminishing use of proprietary platforms.

Leading European Business Integration Vendors in 1994

Exhibit 1 shows the top 20 vendors for BI services, their revenues, market share, presence in delivery modes, and country of origin in 1994.

Exhibit 1

Leading European Business Integration Services Vendors 1994

Rank	Company	Estimated Revenues (\$m)	Market Share (%)	Systems Integration	Turnkey Systems	Professional Services	Country of Origin
1	IBM	2120	5.9	X	X	X	USA
2	CGS	1305	3.7	X	X	X	France
3	DEC	1040	2.9	X	X	X	USA
4	SNI	1020	2.9	X	X	X	Germany
5	Andersen Cons.	845	2.4	X		X	USA
6	Finsiel	655	1.8	X		X	Italy
7	ICL	590	1.7	X		X	USA
8	Sema	575	1.6	X	X	X	France
9	Olivetti	500	1.4	X	X	X	Italy
10	Oracle	330	0.9			X	USA
11	EDS	310	0.9	X	X	X	USA
12	Bull	305	0.9	X		X	France
13	Sysec	290	0.8	X	X	X	France
14	At&T	285	0.8	X	X	X	USA
15	Unisys	280	0.8	X		X	USA
16	Reuters	255	0.7		X	X	USA
17	Intergraph	US	0.7	X	X	X	USA
18	Logica	240	0.7	X	X	X	USA
19	HP	230	0.6	X		X	USA
20	BSO	210	0.6	X	X	X	Denmark

Source: INPUT

The 1994 European BI market, which comprises systems integration, professional services, and turnkey systems related projects, produced revenues of \$35.7 billion in

1994. This represents 39% of the overall services market in Europe. The top 20 vendors, as shown in Exhibit 1, represent 32% of this total market and 75% of the total listed

market. 67 companies generate significant revenues (above \$3m) within the European BI marketplace.

Further analysis reveals that :

- The overall BI market is dominated by an increasingly distinct "break away" group of vendors
 - only 8 companies have revenues above the overall marketplace's average revenue of \$540m.
- This breakaway group are being forced head-to-head in the most aggressive part of the marketplace, systems integration, which although the smallest element of this combined marketplace is the fire in which the shape of overall competition is forged
- Below this level, the marketplace, contrary to some opinion, is extremely fragmented
 - only 9 companies have over 1% market share
 - 63% of companies generate revenues of under \$3m from BI related services.

Exhibit 1 clearly demonstrates the continuing dominance of the BI services market by the familiar major names of the "old style" computing world, and suggests that these vendors' attempts to reposition themselves as services vendors has, with some exceptions, been extremely successful.

Although the nature of the evolving equipment vendors' operations has changed considerably, be it in the development and deployment of new technology, or in their sales and marketing stances, vendors such as IBM with market share of 5.7%, ICL with almost 2%, and Olivetti with 1.4%, have proved more adaptable in changing proactively to the marketplace's new requirements than they are often given credit for.

Analysis of these vendors' delivery capabilities shows that all vendors in the wider BI marketplace are active in professional services, all except Oracle, Reuters and Intergraph are active in systems integration, but that activity in the turnkey systems area, highlighted in Business Integration Research Bulletin Vol V, No. 24, as an important but at times neglected sector, is less prevalent.

The two favoured positions vendors adopt in addressing the overall marketplace are coverage of all three delivery modes and coverage of systems integration and professional services.

Fifty five per cent of companies operating in this enlarged overall market have a presence in all three delivery modes. As well as the companies listed in Exhibit 1, these players also include vendors such as the Finnish services group Tiotehdas, BSO Origin the Dutch consulting firm increasingly active in the United States, and the powerful French software developers CISI, GSI, Sligos, and Steria.

The other most prominent market positing is the 35% of vendors who have a presence in systems integration and professional services.

Major players who currently refrain from activity in the turnkey system delivery mode include Andersen Consulting, ICL, Unisys, Bull, and Hewlett Packard. However vendors such as Bull are increasingly aware of the need to extend their delivery capability to capitalise from the widest possible number of opportunities.

It should be noted that no companies operate purely in the systems integration and turnkey subsector but that there are a number of players such as SAP, Intergraph, and Getronics who have significant presence in the combined professional services, and turnkey systems delivery modes.

Exhibit 2 shows an analysis of the overall market by vendor's country of origin. American companies are clearly still dominant but French companies, such as CGS, the previously mentioned Syseca, and the Sema Group, are now clearly increasing their presence outside of their home market and have lead the way for many other French companies to be accepted by non-French customers.

Exhibit 2

European Business Integration Market — Vendor Country of Origin

Country of Origin	Per cent
United States	37
France	21
United Kingdom	14
Germany	8
The Netherlands	6
Italy	4
Sweden	4
Spain	1
Switzerland	1
Finland	1

Source: INPUT

The Importance of Open Platform Services

Continuing success for vendors such as IBM, Groupe Bull and ICL, however, will depend on their on-going efforts to develop their overall services capability in the face of the diminishing proprietary platforms, and most importantly, in the relationship access that these platforms have traditionally provided.

As these platforms are challenged and replaced vendors will increasingly be forced to develop and demonstrate open technology abilities.

Vendors such as Syseca, Intergraph, and BSO Origin, who though clearly active and successful in the overall marketplace have a much lower profile than companies such as IBM, Andersen Consulting, and EDS.

Their success however is indicative of the healthy order books vendors can generate in multi-platform services through targeting niche markets and through specific market focus, rather than attempting as many vendors have done to develop a full service, pan-European service offering.

Segmentation of the overall BI market, beneath the level of the large pan-European full service players, will increasing threaten vendors' attempts to gain access to market and will require innovative approaches. The development of *long-term* client relationships will become of even more importance than at present.

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Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

Vol. VI, No. 2

1995

Stakes Raised Again in Solutions Delivery

Vendors of Business Integration (BI) services have aggressively been recruiting senior management consultancy staff over the last 12 months.

Victor Millar's recent move from Unisys to establish AT&T Solutions, and EDS' announcement of its intention to acquire the management consultants AT Kearney, has further raised the stakes in the battle to extend influence in client and potential client organisations.

This bulletin discusses these recent developments and focuses on:

- Millar's vision of AT&T Solutions and its relationship with AT&T Global Information Services, where AT&T currently places much of its consulting capability
- The implications for Unisys as they move more deeply into consulting activity and restructure in the wake of Millar's departure
- New moves by EDS to increase its consulting presence through acquisition and continued hiring from *Big Six* management consultancies.

AT&T Solutions

AT&T Solutions has been created as a new business unit in an attempt to harness and leverage all of AT&T's capabilities in information and technology management and to provide large corporations with a single source for *network-centric* solutions.

AT&T Solutions will design, build and manage networking solutions that combine the power of computing and communications, drawing upon the strength of AT&T's broad expertise base.

The unit will be an umbrella organisation covering all of AT&T's relevant offerings and will initially draw on personnel from AT&T Global information Solutions (GIS), which is predominately the former NCR. AT&T Business Solutions, run by Sergio Giaccolletto, and the federal group, AT&T Government Integrated Solutions, which were both formerly in GIS will now be repositioned within Solutions and will report to Victor Millar.

AT&T claim that Solutions begins with a backlog of order contracts valued at more than \$1bn and more than 5,000 employees world-wide.

Millar, who was president of Unisys' World-Wide Information Services (WIS) unit, will report to Victor Pelson, chairman of AT&T's global operations team, and will be the equivalent to Bill O'Shea, President of GIS.

Solutions will use GIS as a subcontractor, but also has stressed that it will utilise *best of breed* people and products from other sources where appropriate.

Staff at AT&T state that Solutions will be an extension of GIS, rather than competition to it, and that GIS will remain focused on its six vertical markets (retail, financial, communication, consumer goods, manufacturing, and transportation/public sector) and product solutions, where it has market leadership for the delivery of technologies such as automated teller machines.

AT&T GIS had world-wide services revenues of \$2.8bn in 1994 and forecasts revenues of \$3.7bn by 1997. Professional Services currently contribute \$600m to this figure.

AT&T have explicitly stated that there are no plans to integrate the two business units in the foreseeable future. There must however be at least the possibility that a rationalisation of AT&T's branding position will lead to this over the next two years as the units mature.

AT&T GIS's attempts to reposition themselves as a customer focused *solutions* provider is in itself a major challenge, coming as it does from a heritage of being perceived as a technology provider. Still in the early days of this process the establishment of a new unit, with a new name but seemingly little immediate obvious differentiation from GIS, could hamper rather than assist this transformation.

Unisys Consulting Restructures

Millar's move inevitably also raises issues regarding Unisys' position in this rapidly evolving part of the BI marketplace. As discussed in BIRB Vol V., No.22 Unisys have been recruiting management consultants into WIS which Millar had successfully established and led.

The most recent high level addition was George Cox, formerly of Butler Cox, and PE International, recruited to run Unisys' UK operation and who though reporting directly to Malcolm Coster, head of Unisys - Europe and Africa, also had a dotted line into Millar.

James Corey and Edward Sanderson who were recruited from McKinsey by Millar have been appointed co-presidents in his place to run the 7,000 strong group.

Under the *Customerize* slogan which is driving all of Unisys's market facing activity, the establishment of WIS has been a strategic attempt to reposition Unisys as a major player at the high end of the systems delivery lifecycle with a focus on being customer driven, service led, and technology based.

Millar's group was the fastest growing part of Unisys in the last year with world-wide revenues of \$2bn in 1994, up 24% from \$1.6bn in 1993. However, there has been speculation that Millar's move is a lead indicator that the future prospects for the unit are questionable, though Millar has explicitly denied this point. Millar is on record as saying that Unisys' had "met his expectations and that WIS will continue to grow". Millar also stated that the new role was an enormous challenge, and that he saw his key strength as establishing businesses rather than running them.

Millar has also been circumspect about stating whether or not WIS was profitable, leading to a possible conclusion that Unisys' heavy recruiting drive, its impact on expenses, and the long lead time to establish and fully load its consultants are putting considerable strain on the corporation's reserves.

Unisys still has a huge challenge ahead of it in changing the market place's perception and understanding of it. Its new message has yet to be fully appreciated and accepted, both by its existing customer base, and its new intended audience, externally and internally.

EDS Plan to Acquire AT Kearney

Vendors' attempts to break into the high ground of consulting will obviously be neither straightforward nor cheap.

The pressure on Unisys's cost base is echoed at EDS, which has also been active in bolstering their consulting capability over recent months. Recent estimates suggest that EDS lost \$15m, from turnover of \$200m, on its world-wide consulting operation in 1994.

EDS, who presently have 50 consultants in the UK, and who have recently recruited a operational performance consulting team from Coppers & Lybrand, have also recently reactivated their interest in acquiring the consulting group AT Kearney. EDS were in discussion with the group last summer, but talks broke down over a price for Kearney, who had world-wide revenues of \$346 in 1994.

EDS' acquisition of Kearney would be a straightforward attempt to propel itself into the world-wide management consulting *top ten*. The move mirrors CSC's acquisition of the Index consulting group in 1987. Index, through its championing of Business Reengineering, have been highly successful in developing the range and coverage for the overall CSC group. EDS patently believe that Kearney not only have the capability to produce a similar growth in revenues but also will help change the market's view of EDS.

EDS who are targeting consulting assignments in the open market as well as from within their outsourcing client base are aware of the long term challenge this strategy poses, and that the market is sceptical about the chances of its successful execution.

Although both EDS and its parent General Motors have deep financial reserves there will undoubtedly be nervousness about supporting a consulting group if it does not appear to be profitable over a reasonable period.

There will also be doubts about the strategy if a robust and distinct EDS consulting culture does not emerge from within the ranks of new staff with different consulting backgrounds, if its new recruits are perceived to be purely after the 15% premium the company are presently paying for consulting staff, and if consulting assignments do not fall quite as neatly from outsourcing contracts as EDS clearly believe they will.

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Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

Vol. VI, No. 3

1995

Business Integration Vendors Must Meet User's Growing Expectations

General European economic conditions have improved markedly over the last 18 months creating the conditions for increased capital investment in large-scale IT projects.

However, whilst large numbers of user organisations are planning to undertake major Business Integration (BI) projects in 1995, they are simultaneously expressing increasing requirements of vendors and increasing preferences for certain types of project and delivery style.

These enhanced expectations mean that vendors must place increasing emphasis on:

- The integration of customer's "Islands of Information"
- Adopting a co-operative approach to BPR implementation
- Offering fixed priced contracts.

Information Integration

One very strong and clear message that major users of IT are expressing is that the integration of existing systems and their "islands of information" is currently a key strategic focus for IT operations. Organisations increasingly recognise that one of their

most pressing needs is to utilise information capital in a far more efficient method.

Far from needing more data or information, companies realise they need to manage, access, and be able to use the information that they already have. At present information exists in many different systems, in different departments, in different formats and from a corporate perspective is often unobtainable.

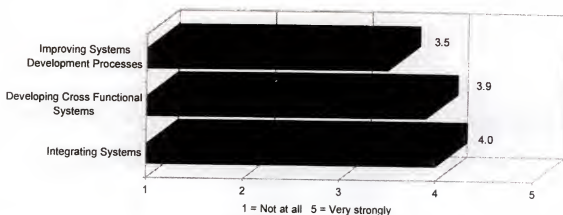
Recent research of European user organisations shows that 43% state that the integration of cross functional information systems is their major tactical focus at present, as shown in Exhibit 1.

Companies clearly recognise that these islands of information in many cases represent huge financial and intellectual investments which are too valuable to write-off. Better utilisation of existing systems is in many cases preferable to starting again from scratch.

Exhibit 2 demonstrates that within these constraints users are expressing an increasing confidence and willingness to undertake large scale developments. 65% of organisations state that they will carry out major IT project work in 1995; only 19% of polled users stated that they had no major development plans.

Exhibit 1

Current Focus of IT Operation in 1995



Sample of 90 European IT user organisations – Standard error 0.13

Source: INPUT

Exhibit 2

Intending to Undertake Large Scale Systems Development or Integration in 1995



Sample of 90 European IT user organisations

Source: INPUT

Co-operative Approaches to In-house Reengineering Initiatives

Another clear message that emerges from recent research is that IT departments are extremely conscious of the need to reposition themselves as supportive of the restructuring and reengineering

initiatives with which their organisations are currently involved. Seventy six per cent of IT managers stated that, over the course of the last year, they had started to perform and offer new services and tasks. Of these new services, the most prominent examples are reengineering competencies and business consulting capabilities.

IT departments clearly feel at the sharp end of the wave of reengineering activity that many major organisations are undertaking, have undertaken, or are planning to undertake. IT managers appear to be acknowledging that if they are not perceived to be part of the "solution", or at least able to facilitate the solution, then they are likely to be seen as part of the problem.

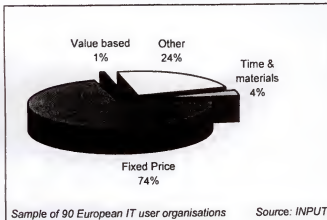
There is clearly an implication for vendors of "co-operative" development and integration services in this finding. IT department managers are receptive towards vendors adopting a supportive approach to these in-house reengineering initiatives rather than attempting to leverage their own offering into the opportunity.

Contract Style Approaches

One of the most interesting elements of this recent research is the light that it throws on the rising customer requirement for fixed price projects. Exhibit 3 presents users' favoured contract approaches to large-scale systems development and integration projects. Seventy four per cent of respondents stated that a fixed priced approach was their preferred contract type. This has risen from around 55% in 1993 and 1994. Clearly customers have seen the benefits of fixed price contracts and now, within the major country markets, it is increasingly becoming a pre-requisite.

Exhibit 3

Users Favoured Contract Approaches to Large Scale Systems Development/Integration



This is less true in the less developed IT services markets such as Sweden and Austria where a time and materials approach to systems development and integration is still the norm.

Companies bidding for large scale development or integration projects will be faced with increasing cost pressure as fixed prices become the standard approach.

Standardised approaches and increasing competition will continue to erode margins and force vendors to examine and improve their delivery mechanisms in order to be able to survive profitably in this important part of the overall IT services marketplace.

Value based pricing which is emerging as the next level of sophistication in the delivery of integration and development services is still, it appears, at a nascent stage.

The research shows that the value-orientated messages that vendors such as EDS, Perot, and Andersen Consulting are driving aggressively in the marketplace are still in their infancy in terms of marketplace adoption. Whilst undoubtedly being attractive and potentially seductive to user organisations, value-based pricing still has a long way to go before it becomes the primary contract approach that vendors adopt.

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- Customer satisfaction levels
- Competitive positioning
- Acquisition targets

For Buyers—evaluate:

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- Systems plans
- Peer position

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Research Bulletin

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1995

Privatisation and Mergers Create Opportunities in the Emerging Austrian Marketplace

The Austrian IT services market has been regarded as presenting a limited opportunity for vendors of Business Integration (BI) related services.

However, changes in the political and regulatory environment at both a European and local level, coupled with a period of strong growth in the overall Austrian economy, are combining to change this scenario.

Vendors who are currently active in the Austrian marketplace, as well as those who are looking to target new growth markets, should focus on:

- Understanding changes in the competitive landscape
- Considering the threat of new market entrants
- Tailoring their service delivery contract approach.

Significant Changes in the Competitive Landscape

The Austrian banking sector within Austria will prove to be one of the most fertile areas of opportunity for vendors of large-scale project services.

Industry rationalisation, long predicted but now actually happening, is providing integration opportunities as systems are combined and enhanced following mergers, acquisition, and insolvencies.

Austria has the highest ratio of banks per head of population anywhere in the world. Modern technology is however changing many banking processes and the banking industry is aware that it will not be able to sustain the present position. As Austrians become more attracted to a less personalised but more competitive service there will be increasing pressure on banks to reduce costs, and examine the options of moving to a more Anglo-American style of operation, i.e. a smaller number of bigger banks.

Another major driver of opportunity for BI vendors is increasing privatisation, in what, since the war has been a socialist-run country. Privatisation will undoubtedly create conditions which will produce major opportunities for external services vendors.

Although the privatisation programme has been somewhat delayed following the October 1994 election, as a result of the new government's focus on its "First 100 Days", an increasing amount of privatisation work is now being carried out.

The largest state owned Austrian bank, Credit Anstalt, is being placed in the open market; AT&S, the state owned semi-conductor manufacturing operation, AMS, the state owned chip maker, and Voest Alpine Technology have all found themselves with new non-state owners within the last six months.

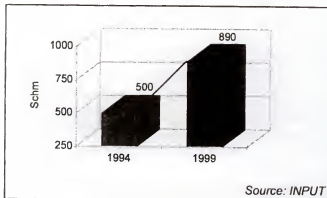
As in other country markets, privatisation has unleashed a wave of new systems development, as new investments are channelled into organisations where funding has been minimal over a considerable period. The privatisation and liberalisation wave will run for many years.

The overall IT services market in Austria grew 7% in 1994. However, prices across all delivery modes, but especially in systems integration, came under increasing pressure as user organisations, following their counterparts in the larger markets of Germany, France and the UK, demanded *more for less*.

The Austrian Systems Integration (SI) market was worth \$41m, 500 million Schillings (Schm) in 1994 and is forecast to grow at 12% over the next five years and be worth \$73m (890 Schm) by 1999, as shown in Exhibit 1.

Exhibit 1

Austrian Systems Integration Market 1994-1999 CAGR



Application software products will be one of the big growth areas within integration and development

projects in Austria, showing a 25% CAGR over the next 5 years.

Development and integration engagements will be built on major application packages such as SAP R/3 and Oracle Financials. Austrian organisations have an opportunity to "leapfrog" old style bespoke development and adopt methodologies based on the new style of "reusable" and "object orientated" thinking that is fast becoming the norm in the more developed country markets of Europe.

New Market Entrants

The privatisation programme and significant changes in important vertical markets such as financial services are attracting new international players to the Austrian market.

Austria's experience in this respect may very well mirror that of Germany's, where telecommunications liberalisation has led to a major influx of non-German players.

In the German market Cable & Wireless have created a joint telecommunications venture with Veba, and British Telecommunications are linking with Viag, to compete against Deutsch Telecom. BT are already in the Austrian market with a joint venture with the Austrian PTT.

Many European telecommunications organisations are targeting opportunities in the Central European region and Austria is a central focus of these initiatives. The mobile telephone business in Eastern and Central Europe is set to become an area of enormous growth potential.

Foreign investment in Austria leapt by 150% in 1994; 20% of all new investment in Austria is now from foreign companies and there are already 800 foreign companies, ranging from the British retailer Marks & Spencer, to the American workstation manufacturer Silicon Graphics, operating in the Austrian marketplace.

Perhaps the most significant new player in the Austrian service sector is EDS. As across all of Europe, EDS can be seen to be the "coming threat" to established and traditional players.

One major acquisition or contract win, which has traditionally been EDS' approach to market entry, could clearly make EDS a major local player.

CSC are also likely to aggressively attempt to increase their local presence. CSC won a GSM billing systems project for the Austrian PTT in 1994, and their recent acquisition of Ploenzke, the German services company, will clearly strengthen their presence in, and ability to deliver to, the Austrian marketplace.

Other new entrants into the Austrian market over the next year will include ICL, who are moving though Eastern Europe via their integration and support projects for the fast food chain McDonalds, who are undertaking an aggressive plan of expansion. McDonalds plan to have 500 restaurants across Central and Eastern Europe by 2000. ICL will clearly benefit from this contract.

Hewlett Packard are another major vendor to start targeting the Austrian market more closely. HP have

15 professionals based in Austria and regard the market as one which will produce significant opportunity.

Another factor to consider is the arrival of new entrants from other market sectors altogether, such as Verbund, the Austrian electricity supplier, who are presently bidding for the country's second mobile network licence. As in Germany, the multi-national telecommunication players such as AT&T, MCI, and Deutsch Telecom are actively positioning themselves, perceiving that much of the competitive landscape, in what is still essentially an emerging market, is not yet particularly rigid.

MCI have recently forged a link with the Austrian PTT to develop added value services, such as E-mail and EDI, across existing networks, and assist in developing the new generation of cable and fibre-optic based telecommunications services.

Exhibit 2 details the leading vendors in 1994 in the Austrian systems integration marketplace. It should be noted that due to the comparatively small size of the market these rankings could alter extremely quickly if a player such as EDS or CSC were to make a major acquisition or gain a major contract, as suggested.

Exhibit 2

Leading Austrian System Integration Vendors 1994

Rank	Company	Market Share (%)	1994 Estimated Revenue (Sch Millions)	1993-1994 % Growth
1	IBM	31	155	25
2	CGS	14	70	75
3	Unisys	13	65	225
4	EDS	10	50	100
5	Digital	4	20	70
	Total Listed	72	360	N/A
	Total Market	100	500	14

Source: INPUT

IBM witnessed strong growth in Austria in 1994 with overall turnover up 11%, and services revenues up by 17%. Currently they retain an extremely dominant position, predicated on the strength of their installed base, and are aggressively looking to leverage the opportunities this account control provides.

IBM state that their revenue split between hardware and software is now approaching 50/50, and that by 1999 they expect to see it as a 30% hardware and 70% software split.

Unisys performed particularly strongly in 1994, benefiting from change in the financial services sector. Unisys undertook a process reorganisation and follow-on systems integration project for Sladische Verischerung, one of the leading Austrian insurance companies, and an integration project for Erste Osterr Spar Casse bank, a leading handler of Eurocheques in Austria.

Unisys also won a systems integration contract worth \$135 million with the leading Czech bank, Ceska Sportielana, which also required some development work in a number of their Austrian subsidiaries.

Siemens Nixdorf are clearly keen to extend their offering from Germany into the adjacent Austrian market. Their strength in Germany offers them the ideal opportunity to do this. SNI are playing particularly aggressively in the process reengineering environment at present with a productised offering, "Kordoba" which is proving successful in the banking and public authorities sectors.

SNI have 50 professionals located in Austria and have recently undertaken significant projects for AVS, the Austrian air traffic control organisation.

In the professional services sector, the leading vendor, Management Data, has consolidated their position in the banking applications software products market.

debis, the German arm of Cap Gemini Sogeti, have formed a joint venture with EDV, the second leading Austrian vendor of professional services to deliver client/server development skills in the local market.

A leading player at the higher level strategic consulting level is Consultatio, formed by the Former Austrian finance minister, Hannes Androsch. Consultatio are performing extremely strongly across the whole of Eastern Europe.

Management Partner, and Roland Berger, both major German consulting firms, are also experiencing significant growth in the Austrian market.

Tailoring Service Delivery to the Local Market

The main characteristic of the Austrian market however is the dominance of the Turnkey Systems delivery mode. Fixed price contracts have yet to make any significant impact on the marketplace. Turnkey systems are indicative of a less mature approach to systems development and integration projects than is seen in the major country markets and even in the Italian market, which in many ways Austria most clearly resembles.

This suggests that services vendors will need to adopt a flexible approach to contract negotiation and develop an approach highly tailored to local conditions.

Value based pricing concepts, which are offering vendors differentiation in more mature markets, may be less attractive and offer less leverage with major Austrian user organisations.

The leading turnkey systems vendor in the marketplace is SNI who currently hold around 8% market share, which is double their nearest rival, Digital, as shown in Exhibit 3. SNI's turnkey projects are mainly in the public sector, but also in the banking and financial sector.

Exhibit 3

Leading Austrian Turnkey Systems Vendors 1994

Rank	Vendor	Estimated Sector Revenue (Sch Millions)	Market Share (%)
1	SNI	285	7.7
2	Digital	145	3.9
3	IBM	70	1.9
4	Intergraph	30	0.8
5	Reuters	15	0.4
6	AT&T	10	0.3
7	Software AG	10	0.3
8	SAP	5	0.1
9	ComputerVision	5	0.1
	Total Listed	575	15.5
	Total Market	3,710	100.0

Source: INPUT

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Research Bulletin

A Publication from INPUT's Business Integration Programme – Europe

Vol. VI, No. 6

1995

European Systems Integration Market Grew 14% in 1994

The European market for Systems Integration (SI) services continued the recovery it began to demonstrate in 1993 and in 1994 grew by 14%.

However, although major European IT users, in this post recessionary period, initiated significant capital spending on IT projects they increasingly made clear their growing requirement for measurable value and benefit, *on the enterprises' terms*, in return for these investments.

Ever increasing demands, coupled with change in the patterns of demand from a geographical and industry perspective, have altered the competitive landscape more than some vendors have been able to comfortably deal with.

Amongst the most significant dynamics within the European systems integration marketplace at present are:

- The increasing internationalisation of demand
- The growing requirement for standardised, international "best of breed" solutions

- The increasing acceptance of the major US headquartered service providers
- Increasing consolidation of service provision across major country markets which are continuing to develop faster, in terms of both requirements and solutions, than smaller country markets.

Increasing Internationalisation of Demand

Major corporations, the prime market for vendors of integration services, are becoming increasingly international in both outlook and operation style.

Either operating at a national, or pan-national level, large multi-nationals are having to compete against international benchmarks of performance; it is no longer an operational option to be a strong player, in whatever field, by local standards. These have been supplanted by the need to be strong players by international standards. Banks aim to be "world-class banks", airlines "world-class" airlines, oil companies "world-class oil companies".

This drive for world-class performance as a result of commercial pressures in increasingly de-regulated, time sensitive, globally competitive, technologically rich environments, is leading corporations to seek the same capabilities they have to offer in order to compete, from their suppliers. Critical mass has become key in order to successfully operate against the background of these relentless pressures.

These commercial pressures are compounded by pressures of a political and social nature with the movement towards an increasingly unified Europe. Individual countries are moving inevitably, although with strong pockets of resistance, to an increasingly unified position, seeding certain responsibilities in order to compete against other major trading blocks.

At a European political and social the same message has become irrefutable; global competition requires a global response.

Increased Demand for "Best of Breed"

These demand side pressures are forcing rationalisation and consolidation of the supply side in many different fields. IT services are no exception. Exhibit 1 shows the leading vendors in the European systems integration market in 1994.

The market was worth \$4,700m in 1994 and grew in the period 1993–1994 2% more than in the period 1992–1993. The importance of the SI marketplace is primarily due to the fact that it is the main channel for the delivery of missions critical IT and business systems to major blue chip European organisations and from a revenue perspective accounts for almost 40% of the overall European software and services market.

Exhibit 1

Leading European Systems Integration Vendors 1994

Rank	Company	Market Share (%)	1994 Estimated Revenue (\$m)
1	IBM	21	994
2	Andersen Consulting	10	474
3	Groupe Bull	8	370
4	CGS	7	342
5	ICL	5	260
6	EDS	5	250
7	DEC	5	235
8	Sema Group	4	192
9	SNI	3	152
10	Logica	3	126
Total Market		100	4700

Source: INPUT

The top ten vendors account for almost three-quarters of the overall European for large scale development and integration projects. Beneath them is an extremely long tail of sub contractors, niche and *large* niche players whose marketplace entree is centred on a particular technology or knowledge of a vertical market application.

It is becoming increasingly evident however that these large players are extending their dominance within the supply side of the marketplace. Even within the top ten the same dynamic is occurring; there is an increasing gap between the two largest vendors, IBM and Andersen Consulting, and the national country and two or three European country market players. Of the chasing pack EDS may soon be pushing

Andersen Consulting if 1995 proves to be as successful for them as 1994 was.

Their systems integration revenues increased by 13% in 1994, although this was a small gain in comparison with the growth they achieved in outsourcing related services.

The reason there is increasing consolidation even within the big ten is that multinational corporations are increasingly looking to their suppliers to be able to support them wherever they are operationally active.

They are as well, and most importantly, looking for consistency of *high* service levels wherever they are operationally active.

Corporations are unwilling to accept excellent supplier performance in country A, but that to find that in a neighbouring country the level of service is relatively sub-standard.

This dynamic is true of the adoption of technologically based solutions. Organisations seek "best of breed" across all territories and time-zones. This is resulting in demand for standardised and compatible solutions, packages, applications, platforms, and the elimination of cost through economies of scale wherever possible.

Vendors of localised, bespoke, sub-international standard offerings are finding it increasingly hard to compete against these growing demands. A single country market focus is no longer a sustainable niche.

Increasing Acceptance of Major American Service Providers

The net of these trends and dynamics is an increasing utilisation by large multinational

corporations of the European capabilities of the major American service vendors such as EDS, CSC, ISSC, and Andersen Consulting.

These companies, or divisions, have been able to meet the demand for international best of breed in terms of:

- Capability
- Thought leadership
- Market coverage.

At the same time they have been able to align these attributes to markets with localised sensitivities.

Their success has opened up a significant gap in market share between themselves and the more local, one or two country market players who now appear to be struggling, with one or two notable exceptions, to maintain the competitive pace.

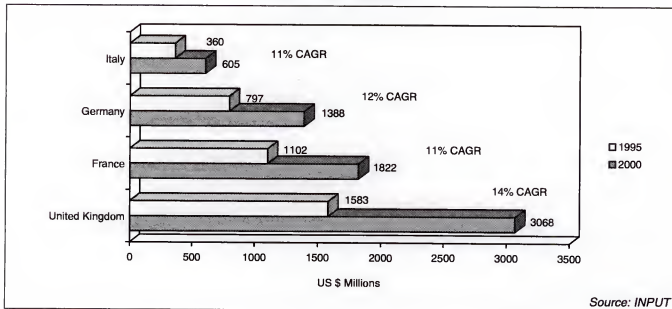
Consolidation of Service Provision in Faster Developing Country Markets

This increasing consolidation of leading players is most noticeable across the four major country markets of Europe, the UK, Germany, France, and Italy, who between them represent almost 85% of the total European market for SI services.

In turn these country markets are increasing their share of the European marketplace, growing steadily and forecast to continue growing steadily over the medium term as shown in Exhibit 2.

Exhibit 2

Growth in the Major Country Markets for Systems Integration Services in US \$, 1995-2000



It is not surprising that the country market that is growing fastest is the one where this maturing process, and especially the adoption of US originated best of breed services is happening most strongly; the United Kingdom.

The UK grew at 14% in local currency terms and 20% in dollar terms between 1993 and 1994 and is forecast to grow more strongly at 14% than the other major country markets over the medium term.

Growth in the marketplace was uneven from both a geographic and vertical market perspective. Some countries, most notably Germany, whilst still struggling to establish an exit from the early Nineties recession, appear to be teetering on the brink of a new mini-recession.

Similarly, some vertical market sectors, utilities and financial services being the most prominent examples, do not appear to be offering the opportunities they once were, or once promised to do.

The SI market is witnessing changes that are early indicators of changes in all aspects of the overall software and services market. Change in the demand and delivery dynamics in the public sector, in the telecommunications and financial services sectors are of crucial importance to interested parties not purely from the SI industry. Changes in these areas today will impact other markets and areas of IT services tomorrow.

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Research Bulletin

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Vol. VI, No. 7

1995

Telecommunications Represents “The New City” for Business Integrators

The opportunity which the European telecommunications sector presents to systems integration (SI) vendors has grown explosively over the last 18 months.

The telecommunications sector has replaced the financial services sector as the most dynamic area for the adoption of new technologies and has led some to label it *The New City*; the financial services sector being the last area to witness such high growth rates of IT-related investment.

However, this explosive growth is not unsurprisingly attracting growing numbers of vendors into the European marketplace. These include traditional, existing European SI players who are attempting to manoeuvre their services offerings away from low growth or stagnating vertical markets, as well as players new to the European market or new to the IT services industry altogether.

This situation is creating heightened levels of competition in a market which is undergoing,

and will continue to undergo for some time, fundamental structural transformation.

Vendors wishing to compete, or continue to compete, successfully in this high growth market need to examine these issues in the context of the:

- Overall Size of the telecommunications-related opportunity across Europe and in the major country markets
- Dynamics driving the utilisation of SI-services
- Inhibiting factors on growth.

Growth in the Telecommunications Market Set to Continue Over the Medium Term

Exhibit 1 shows at a pan European level the growth in telecommunications related spending between 1993 and 1994 and Exhibit 2 provides a pan European forecast of growth for the next five-years.

Exhibit 1

Systems Integration Services Growth in the Telecommunications Sector, Europe 1993-1994

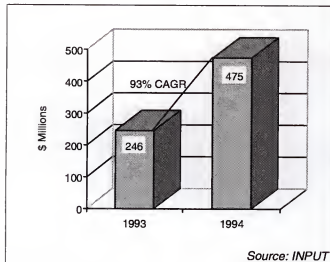
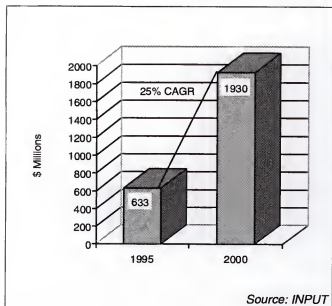


Exhibit 2

Systems Integration Services Growth in the Telecommunications Sector, Europe 1995-2000



The market for SI-related services in the telecommunications industry will grow at a compound annual growth rate of 25% over the

next five-years, from \$633m in 1995 to \$1930m in 2000.

Systems integration services are being used to link critical operations such as customer services, maintenance systems, and billing applications systems; the objective being to improve customer response and services and to establish the basis for higher speed services and specialised applications such as interactive services.

Technological applications are being provided around "POTS" – plain old telephone services but increasingly "PANS" – pretty awesome new stuff.

At a country market level the United Kingdom and France are the most dynamic areas in terms of telecommunications IT-investment.

In the UK the mini post recession consumer led spending boom has fallen back somewhat, but expansion in public sector spending and most noticeably telecommunications has created significant opportunities for vendors.

The volume of business in the telecommunications sector has grown by almost 100% in this period, adding almost £50m in revenues to the total market.

In France the telecommunications sector enjoyed strong growth in 1994 and has become the shining sector in the overall French marketplace; particularly though in the systems integration market.

Privatisation of the domestic telecommunications market, though politically still some way from becoming reality, is undoubtedly on the agenda. As a result there has been considerable manoeuvring for commercial position amongst vendors, both in-situ and new players.

The telecommunications sector added FF184m in revenues to the overall marketplace in 1994, growing at a rate of 52%.

Professional services are also in great demand across Europe in order to assist large organisations in identifying, planning and developing major new systems. Vendors that have experience in developing large complex integrated systems are finding a ready market for their service offering as carriers and cable television companies develop comprehensive new systems capabilities.

These services are complementary to system build and systems integration activities as large European and increasingly American based carriers and cable TV companies invest in new technologies to support new information services, electronic imaging systems and network switching devices.

Vendors of systems integration services are well placed to implement both traditional and increasingly new technologies as they mature due to their prime contractor and project management skills.

As the European market for telecommunications becomes increasingly deregulated carriers will, as carriers in already de-regulated markets have done, devote extensive resources to enhancing their primary applications software.

The majority of legacy systems will be enhanced or more likely replaced. The process of integrating existing systems and incorporating new areas will mushroom.

Activity in the telecommunications industry continues to focus on broadband, interactive TV and content based information services. In addition, need still exists to provide better internal support for changing organisations and to make better use of available resources.

Dynamics Driving the Utilisation of SI Services

The major market forces in the telecommunications sector considered below.

Deregulation

Deregulation has intensified pressure for competitive performance. This has become a baseline driver behind much of the shift to outside services. Many managers have apparently realised the inadequacies of systems they presently have or will have immediately following deregulation.

Competition

The competitive environment continues to change as traditional business boundaries dissolve. The entry of the cable industry is creating both confusion and new demand. Common carriers who have traditionally been somewhat protected from new competitive pressures, and in many country markets still are, are increasingly being faced with new competitive threats.

Service/Organisation Integration

With increased competition the need to improve customer orientated services has now become a pressing necessity. One benefit of the decentralising effect new technologies such as client/server have had is that they have moved staff closer to customers. With this trend there comes an increasing need to have integrated service and support systems.

Flexible Software

There is increasing demand for flexible software which is needed to support customers who want to be able to change service features immediately. Delays in this area are no longer acceptable. Business customers also want to be able to change service features directly from their own premises, which can create additional demand for open system architecture and database systems.

Productivity

A key to competitiveness is staff (both information systems and user department) productivity. CASE tool for example are increasingly contributing to information systems productivity, and electronic imaging systems can offer significant productivity advances to users departments.

Internal User Needs

As in other industries information systems executives in the telecommunications industry are increasingly driven by the needs of their internal user departments, as those users respond to growing customer needs. The complexity of carrier systems has slowed the move of information systems into user departments, compared to other industries. But the move has begun and will increasingly create demand for systems to be deployed more quickly and cost effectively.

Inhibiting Factors on Growth Which Vendors are Increasingly Being Forced to React Towards

There are a number of factors, which are acting as inhibiting factors in this market however. These are discussed below.

Customer Uncertainties

The ability to make changes remotely to services features or network configuration is frequently cited by customers and information systems managers as a key market need, but in many other cases needs are not clearly defined or specified, and thus solution design and implementation can be delayed.

Regulatory Realities

There are a limited number of cable TV territories that would appeal to new players under current European regulations. Regulatory bodies are strictly enforcing the notion that regulatory change must benefit customers as well as the business community.

Incomplete Standards

Attempts to set standards affecting open system architecture, EDI, and radio spectrums are still incomplete. As a result many existing players and new players are cautious about making major investments to provide these services until they are certain that future changes will be minor.

Public Pressure

Consumer advocacy groups are continuing to pressure carriers to offer lower cost services. With the change from profit to price ceilings, public pressure will almost certainly intensify if profit margins appear to be excessive.

Such groups generally have little interest in new services or the benefits of delivering new services. They tend to be single minded and focused solely on the provision of low cost basic services.

Overall, the driving forces significantly outweigh the inhibiting factors. Telecommunications industry expenditures for information services will grow at a rate approaching twice that of the information services market as a whole. The emphasis is still on improving core systems and areas that will provide opportunities for most vendors of information services, particularly those that provide professional and systems integration services.

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Research Bulletin

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1995

Business Integrators Are Well Placed to Meet the Challenges *Cyberspace Trading Poses*

Recent research amongst leading European IT users suggests that interest in all aspects of electronic commerce has resurfaced as a real concern for business and technical executives over the last 18 months.

Though EDI's growth has failed to meet the expectations many had for it since it was widely trailed and introduced as a new channel of commerce in the late 1980's, suggesting its benefits have remained relatively elusive, electronic commerce appears to be taking hold as a niche but increasingly realistic option for businesses. Within this broad interest in electronic commerce the Internet has in a relatively rapid period focused organisation's interests onto a concrete and available technological environment.

However, electronic commerce either through the Internet or through virtual private networks is still extremely nascent and faces huge technological, but even more importantly huge social, humanistic challenges. Those who

are strenuously and evangelically promulgating all things Internet will increasingly have to face and satisfactorily meet these challenges if the Internet and commerce through it is to mature and to rival in the late 1990's the growth of the personal computer rather than to be seen in time as nothing more than a variant on CB radio's boom and bust.

Systems Integration (SI) vendors offering or hoping to offer services into this potentially huge marketplace are well paced to benefit from these developments due to their prime contractor and project management skills. In order though to target and shape their resources most effectively, they need to consider:

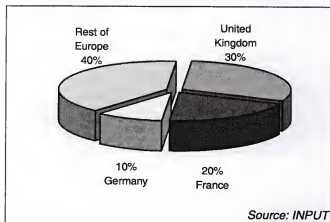
- The size, shape, and characteristics of the Internet
- Marketplaces adopting electronic commerce
- The Requirement for *Utility*.

The Information Services Story of the 1990's.

The number of Internet user IDs and traffic volume is growing at a geometric rate. INPUT estimates that there are more than 25 million users on the Internet worldwide. The World Wide Web, the GUI driven component of the Internet, already contains over 50,000 sites; it is estimated that this population is doubling every two months. Exhibit 1 shows the relative proportions the major country markets represent of the overall European Internet market in terms of revenues suppliers are generating from services related to building or supporting the Internet. The overall European market is estimated to be worth \$100m.

Exhibit 1

Major Country Market Shares of the European Internet Market, 1995



The Internet phenomenon is already shaping up as the biggest information services story of the 1990's. But clearly major questions remain to be answered, including more precise definitions of the size, shape and nature of the commercial opportunities, that will undoubtedly emerge.

The global presence of the Internet is providing local, regional, and national businesses with the potential to conduct personalised commerce across geographies and timespans. The Internet provides a global infrastructure that allows a commercial transaction to be initiated and completed solely by the buyer. Internet commerce is beginning to reduce transaction costs by streamlining the number of people involved in a transaction and by aggressively cutting processing costs.

Marketplaces Adopting Electronic Commerce

The Internet is altering commercial value chains and eliminating parts of value chains which now no longer add real value. Organisations hoping to offer services which eliminate, through technology, elements of value chains face difficult choices in isolating which elements of these value chains can be eliminated and which can not.

Research suggests that software, technical books, and flowers seem to sell well through the Internet but that holidays do not. It should be noted however that 25% of holidays in the UK are sold via Teletext, a television text based service.

The World Wide Web has emerged as the commercial district of the Internet and is the area in which these value chains are most rapidly mutating. The Web is fast becoming one of the Internet's most dynamic and fastest growing services with thousands of companies going on-line with their own Web pages.

The Web is making it possible for a contract to be completed between companies in different countries in one afternoon. Purchasers not only benefit from speedier transactions but also from a wealth of information at their

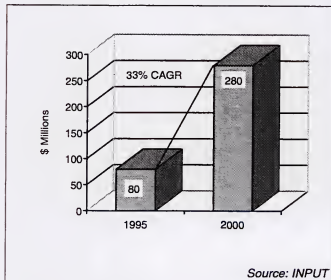
fingertips. Purchasers can browse electronic catalogues and shopping malls within a global marketplace from their office or their home.

The Web, which will contain 50,000 web servers by the end of 1995, is widely regarded as the backbone for global electronic commerce. Business opportunities are increasingly evident in the new context. Many organisations are using creative ways to market their products over the Internet, offering samples of software products, or through distributing electronic catalogues instantaneously to previously established mailing lists.

Exhibit 2 provides a forecast of growth for the European electronic commerce marketplace over the next five years. The market, worth \$80m in 1995 will be worth \$280m by 2000, a compound annual growth rate of 33%.

Exhibit 2

Growth in the European Electronic Commerce Marketplace, 1995-2000



The Requirement For Utility

As Lou Gerstner writes in the latest IBM Annual Report "Information Technology will revolutionise every institution in society ... but it will not happen the way, or as fast as, predicted by the pied pipers of this industry, who are obsessed with and endlessly predict electronic utopias and who are covered breathlessly by some in the media".

The Internet or the Information Superhighway, as the above exhibits demonstrate is clearly growing extremely quickly. How quickly and to what eventual size will be driven by how rapidly this technology spreads amongst non-technological users. This crucial question will in turn be driven by the issue of utility; of how useful ordinary people find it.

There has been a significant shift in the broader IT industry. Information has become key; the delivery of information has become less important to users, unless they are paying too much, or the delivery is in the wrong form.

The IT industry has traditionally focused on technology and has taken 35 years to realise that this focus has increasingly been to its own disadvantage.

The drive to deliver IT to business metrics rather than to traditional IT ones such as MIPS per dollar, which vendors such as Andersen Consulting and EDS are aggressively driving at present, is a reaction to this realisation.

A general consensus has emerged in the business community that people can not be effective managers without caring about *information* but can be effective managers without caring a great deal about *information technology*. The two are clearly related, but because the IT industry is essentially

dominated by technical people, fundamentally interested in technical developments, in delivering IT issues of real utility, have historically taken a back seat.

Though this is changing in the adoption of technology in the "big business mainframe world"; the Internet and its proponents run the risk of overlooking these long hard fought lessons in this new emerging world.

How big the Internet and electronic commerce over it becomes will be dependent on vendors being able to demonstrate the utility of the Internet. As the Internet is predominately a channel for the delivery of *information* it will be necessary to produce a model for analysing the cost and benefit of *information*. Not of technology, or access, but of *information* itself.

There are a number of major on-line information providers who over the last 10-years have established a level of critical mass both in terms of their offering and their subscriber base that has seen them begin to differentiate themselves from their competition. In the UK Reuters, Knight Ridder, Maid and FT Profile are now in the position where their infrastructure of service delivery make them the primary sources of high volume business information.

However, experience of these well established, but unprofitable it should be noted, commercial on-line databases suggests that the demonstrable utility of these services is still open to debate.

In searching commercial databases in order to research an area for a presentation or a report the user is constantly, even if quite experienced in the techniques of database searching, in the middle of a *forest of information*. In this forest the user quickly finds that the more trees they

chop the greater the circumference of trees there are to chop becomes.

Chopping trees, i.e. checking sources, reading sources, making sense of sources, always with the thought that the more the user fells the more there is to fell, with the thought that the edge of the forest may or may not exist, and with no certainty of how much the process will cost and what exactly will be gained.

This, in the pre-Internet world, is a complicated and expensive business and one that has grown nowhere near as fast as vendors had expected or anticipated. The Net undoubtedly has the potential to make this process more complicated rather than more simple.

On-lines databases are mainly used to research areas that are new to the searcher. This immediately places the user up against *what's there* (volume/quality) and *how much* (volume/cost) questions, remembering that anything that anybody can charge for they will charge for.

Although the Internet is presently a no-cost environment this is beginning to change. VISA, the credit card processing company are currently attempting to perfect transaction security software suitable for use on the Net. This will alter the economics of the Internet fundamentally and make them more akin to those in the existing on-line information services industry.

These on-line databases already offer in the IT industry unquantifiable sources of information, generated by vendors, researchers academics, consultants, the press, commentators, users, the government, non-governmental bodies, standards organisations, all pumping out reports and articles, press releases and marketing flyers into a vast multi-billion dollar

global marketplace in hard copy format, electronic formats, in briefings, on conference platforms, in seminars, and in systems delivery and installation.

Complications arise in using on-line databases immediately the question is formulated. How is the information to be used, what level of analysis is required, what is the budget available for the research, £100 or £10,000 pounds? It is often possible to spend either on answering the same question. Software search engines are still extremely immature and Nicholas Negroponte's concept of software "butlers", able to respond to vague non-specific requests, are still a long way off.

The I-Way is making the forest of information even bigger, even more dense and overgrown, and the choice of information available obscurer and to some, more intimidating. As on-line database users have often experienced and commented on, there is nothing more paralyzing than infinite choice.

Increasingly, the edge of this *forest of information* will not exist. The Internet is beginning to give the user access to more information than they can begin to deal with. This process has only just begun to establish a foothold in commercial circles. However, it appears to be the future.

But a future where as Nico Colchester of the Economist Intelligence Unit (paraphrasing the High Priest of the "Global Village", Marshall McLuhan) points out, "the bottleneck in the information business will not be the medium, which will be limitless, but the shortage of a decent message.

Potentially this is a future of vanity publishing without an editorial in sight (*edit - implying conscious decisions about what to include but more importantly what not include*), a future

without branding, shared values, simplified choice. A future where the complexities of life are increased rather than reduced.

Brokers in the non-electronic age have traditionally been used to make finite the infinite. Though potentially the role of the broker, as a specialised part of the value chain, is under threat, there are still many types of brokerage whose added value the Internet will not easily replace.

Brokerage is performed in many different areas of our day to day lives; music, news, literature. Most people do not have the time or the inclination to go to every music concert in their biggest city to check out every new band in order to have 40 minutes music in their car on their way to work. A brokerage firm called Virgin Records does this for them.

Most people do not have the time or the inclination to read every manuscript written in order to read for 20 minutes last thing at night. A brokerage firm called Penguin Paperbacks does this for them.

Most people do not have the time or the inclination to deal with all the news in the world. Brokerage organisations such as the BBC, Radio France, or CNN do this for them.

Vendors must be aware that the complexity elimination of the wrong parts of value chains could bring is one of the potential downsides which the Net/Web offers.

In the same way as management writers such as Charles Handy have now recognised that middle managers who were victims of corporate downsizing were after all important elements of value chains — great resources of knowledge about the way their company *actually* worked and that their demise has in many instances made senior executive decision

making more, rather than less difficult, vendors must be clear about isolating those elements of value chains which are genuinely redundant in this new paradigm.

Another paradox in the debate about the utility of information and hence one that affects the potential growth of the Internet and electronic commerce is that at the same time as there has been an explosion of interest in the Internet, companies at the cutting edge of thinking about business information and its utility have, due to the complexities and associated costs of using public domain information available thorough electronic sources, begun considering not the need for more information (which the Internet promises) but the need to do more with what information they already have.

These companies have realised that they already store massive amounts of information and more importantly massive amounts of processed information, i.e. knowledge. It has

become clear that companies are drowning in information. Most of it however resides in the most inaccessible place possibly imaginable. People. People's brains. But also in working papers, assignment files, conference speeches, memos, and workshop flipcharts. The message has become that the enterprise in reality knows far more than it probably gives itself credit for.

As a result these companies have started to attempt to *index knowledge* and gain maximum leverage from the information that the organisation already has.

Many professional services firms are heavily investing time and energy in this process. Andersen Consulting, Price Waterhouse, Ernst and Young, McKinsey & Co., Coopers & Lybrand and the legal firm Linklaters and Paine are amongst others who are all trying to *index knowledge* and facilitate corporate and individual knowledge transfer initially internally but ultimately into the marketplace.

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Utility Deregulation Generates Project Services Opportunities

The European utilities sector, although having generated substantial amounts of Systems Integration and Professional Services related projects over the last five years, has been regarded as a relatively "low-tech" and unexciting IT environment.

However, changes in the political, business, and technology climate in the recent past are but a foretaste of the upheavals the sector will experience in the late 1990's.

This bulletin presents an overview of the continuing development of the utilities sector and in particular focuses on:

- The state of European de-regulation
- The primary technologies currently being implemented and details of future requirements
- Industry "mutation" as utility organisations begin to offer information services both in stand-alone mode and in joint ventures with IT organisations.

New Wave of EC Driven Regulation

European Utilities have undergone unprecedented change over the last five years as they have been subject to a combination of politically motivated de-regulation, at differing rates in different countries, and increasing consumer pressure for improved levels of service coupled with reduced prices.

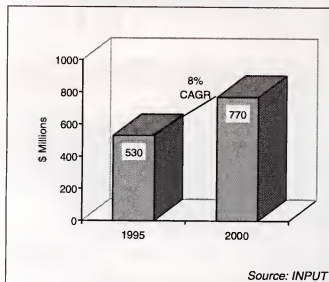
Pre, intra and post privatisation has produced, at times, painful change to utilities business environments. In the UK utilities have had to undergo a rapid transformation from operating as, and being regarded as, traditional public sector departments, to entrepreneurial, lean Plc's.

Although the UK has been at the forefront of this change, other European countries are now set to experience many of the same issues, as they too embrace more liberal, non-state managed provision of electricity, water, gas, nuclear power, and sewerage.

Exhibit 1 provides a forecast of growth in Systems Integration related work in the utility sector over the next five years. \$240m of revenues will be generated in this period.

Exhibit 1

Systems Integration Growth in EC Utilities Sector 1995-2000



At the same time as national governments have begun to initiate these changes, the European Parliament has become vocal in both pan-European de-regulation but also in establishing new regulatory frameworks for cross border competition which is becoming a feature of the European utility sector.

The EC Commission is increasingly focused on pan-European electricity de-regulation and is calling for negotiated third party access forcing monopoly suppliers to allow others access to existing grids.

In the water industry the EC is implementing an "Urban Waste Water Treatment Directive" which the UK Government are lobbying to have phased in over the next ten years, rather than the proposed three, to allow investment costs to be spread over this longer period.

The European Environment Agency, an EC Agency, is taking a stronger line in its criticism of European Water organisations and is attempting to enforce mandatory "Water Quality Objectives" which will require considerable investment.

Regulatory, and pressure group driven concerns with environmental issues increasingly being seen as key and clean water campaigners becoming more media "savvy", are placing water utilities under intense cost pressure.

Increasing levels of investment will be needed to meet statutory requirement such as, in the UK, an Environment Bill in April 1996, which will place a duty on water companies to promote the efficient use of water by their customers who will criticise utilities' own considerable leakages.

Utilities primary business objectives have become those of traditional private companies:

- Improving profitability
- Improving and enhancing services offered to customers through the use of IT
- Cost management.

Efficiency improvements have become key and cost management is of increasing focus due to new shareholder value obligations. OFFER, the UK Electricity Consumer watchdog, is also examining putting in place pricing restrictions.

Privatisation has demanded improvements in the level of services; in electricity distribution vendors now face fines for breaks in transmissions.

New competition has been created with, for example in the UK, the split of the old Central Electricity Generating Board into two new operating companies. As a result there is now intense price competition amongst these new competitors.

The planned reform of the "trading pool" between National Power and Power Gen which may be forced upon them which would have project services implications.

The present timetable for privatisation of the electricity market is currently being threatened by a dispute over who will meet the estimated £300m bill for new computer systems.

Power generators are unwilling to pay all of these costs and regional electricity companies are concerned about how they will recover the costs from customers.

Although monopoly provision in the UK has been "dis-established" with the creation of regional water companies it has proved difficult to instil real competition into the marketplace due to the primary control regional players have over the physical infrastructure. The costs of (urgently needed) improvement to this physical infrastructure has also in some cases been unattractive to new entrants.

At the distribution level it would be more logical to expect re-regulation rather than further deregulation, implying a tightening rather than a loosening of central government interest.

In electricity there have been claims from large companies that privatisation has not really had the desired effect and a monopoly has been turned into a cartel.

Political pressure will paradoxically have both an inhibiting and driving affect on IT related investment; the driving affect will though be substantial. Political and social pressure over profiteering will force the need for careful cost management.

The complexity of regulatory requirements covering pricing, environmental concerns, taxation and changes in tariff structures, more sophisticated use of billing, extension of off-peak demand windows will all continue the need to develop more sophisticated operational and reporting systems.

The regulatory fishbowl in which utilities operate paradoxically engenders an extremely conservative business philosophy; best-cost vendor offerings will undoubtedly therefore be necessary to compete.

Technology Implementation

The most pressing issue for the majority of European utilities is to address the fact that many of their IT applications and infrastructure are ageing rapidly; the steep price rises of the last 2-3 years have been a reflection of these investment requirements.

At the same time the increasing complexity of available technology has made skills refreshment a key concern. Many utilities are finding it difficult to recruit and retain staff with necessary skills, especially those with specific application knowledge; staff loyalty has become a competitive necessity. The problems utilities are experiencing in this regard, of course, promise to create opportunities for external services providers.

Recent INPUT research into water companies' use of IT suggest that the two key IT related issues are:

- To become more cost-effective in using IT
- Reduce time taken to implement new applications.

There are three principal applications in the utilities sector:

- Commercial (largely accounting)
- Engineering
- Operations.

Historically, formal IS organisations have only been responsible for the commercial applications; operation and engineering applications have been end-user responsibilities. This has meant that identifying corporate buying points has been more complex.

However, organisations are looking to create centralised "service centres" to manage common requirements. Although systems are increasingly de-centralised there is a movement back towards centralised management of complementary services.

Customer information services is a key area of development projects and is the main area in which utilities are increasingly being faced with the need to create customer loyalty as new competition emerges.

Customer information services comprise a wide range of business functions utilising information from a central database.

In the first tranche of post privatisation development work in the UK these were mainly via large centralised databases; moves to client/server and distributed networks suggests that the second tranche in the UK, and the first tranche in other European

countries will be under a less mainframe-centric approach.

In the UK politically motivated timescales produced software which has been found to be sub-standard.

There is increasing use of relational databases for customer information services. Marketing data is, belatedly regarded as an increasingly valuable asset for internal use and to sell on to third parties. Data, however, has to be usable from a cross-functional perspective. Household profiling and creditworthiness details will lead to sharper focused marketing.

However, and perhaps fortuitously for project services vendors, customer systems become obsolete almost as soon as they are completed.

Having moved from batch to on-line the next developments will be to fully OLTP a la banking systems. Single person customer contact will become the norm. Another development will be the utilisation of artificial intelligence to extract delivery and billing patterns from direct customer contact. As the contact details grow individualised service can be generated.

Links between customer systems and geographic systems utilising digital maps is a promising new development. This will enable screen-based identification of physical locations of system faults.

Major systems development projects being undertaken currently include those to develop:

- Meter reading
- Billing
- Debt collection
- Management of service orders

- New customer management
- Customer movements
- Marketing.

Systems must be fully transparent both for operational management purposes and to satisfy regulatory demands.

External links to service vehicles and remote building management systems are all being developed. This presents a growing data management requirement.

On the engineering side applications packages are increasingly used while operations favour a more customised systems integration approach.

Cross-industry applications such as stockholder administration and human resource systems are commonly used.

The use of utility specific application code often modified by a utility or a vendor to meet the specific requirements of an individual utility is also growing rapidly. Customisation for larger companies is the rule not the exception.

Sensor based systems can essentially be regarded as turnkey systems; however specialised hardware and software packages are increasingly available.

In the smaller utilities the application set is usually limited to customer support systems with an emphasis on billing.

There is a growing requirement to integrate operational systems with other corporate systems.

Utilities Develop Information Services Offerings

The European utility sector is beginning to slowly realise the part it can play in the development of the fabled Information Super-Highway.

Through the utilisation of existing delivery channels such as power lines and sewerage tunnels alternative elements (e.g. multimedia services via power grids) can be delivered.

Utilities have realised that their entrenched distribution positions offer them a significant opportunity for horizontal diversification which is an attractive option due to the essentially fixed nature of their core business.

Although regulatory controls may attempt to prevent cross subsidisation of commercial activities utilities are looking to aggressively develop positions in converging markets.

British Gas and Amdahl have recently established a joint venture organisation, AG Solutions, to operate in the UK gas sector which is to be privatised by 1998. Amdahl and British Gas hope that AG Solutions will become one of the top five companies providing IT and information based solutions to this market sector by the end of the decade.

British Telecom are forming an alliance with Viag in Germany to offer multimedia services through Viag's electricity development channels. In France Generale des Eaux, a water organisation are offering telecom services. Many of the major European electricity companies have gas supply arms and will be looking to increase their share of the gas market.

Utilities do however, have a traumatic track record in attempting diversification based strategies. Some have tried these policies before; for instance, some utility organisations

in the UK have attempted to offer financial services have not been particularly successful. Multimedia through the existing infrastructure appears a more credible offering.

The market is also seeing the establishment of wholly owned IS services companies within an overall group (i.e. Severn Trent Systems within the Severn Trent Group) which may lead to these companies becoming service vendors as CFM in the UK have already done.

Cross-country exchange of electricity may bring new players (and subsequently new IT service providers) into Europe, witness the recent moves of American Electricity providers into the UK. As utilities markets become more open to competition there will be increasing opportunities for cross-utility service providers.

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“Delivering Value”; The New Challenge for Business Integration Vendors

The systems integration and professional services industry has entered a phase in which vendors are attempting to demonstrate IT's ability to deliver benefits on business terms, for example, increasing an organisation's earnings per share or its market ranking.

This message is fast becoming the new mantra for success in the increasingly competitive project delivery marketplace.

Vendors such as EDS and Andersen Consulting have been extremely vocal in pushing the message that they are now contracting to deliver IT projects to non-IT metrics rather than traditional IT ones based on functional requirements aligned to a fixed development term or price.

However, other vendors have expressed scepticism towards these developments seeing enormous complication in defining and isolating specific measurable metrics which can be used to judge the long term success or

failure of a contract. The ability to separate the causal correlations between the development of an IT system and the subsequent fortunes of a company have also been questioned.

This bulletin examines the development of this issue since INPUT first commented on this in April 1994. In particular it focuses on:

- Questioning whether messages of “value” and “business benefits” are a response to user demand or whether they are marketing propositions being driven by competitive supply side issues?
- How vendors are developing and positioning their new added value service offerings
- What effects these developments are having on the overall shape of the industry, and what impact they are having on the market's growth prospects.

"Value" — A Marketing or an Operational Issue ?

Value-based pricing has rapidly become a major issue for Business Integrators over the last 18 months. It is though, a contentious topic which is dividing opinion in the European project services community.

Value-based pricing can be defined as the linking of project price to the achievement of specific business goals within a client organisation. If the project succeeds in achieving these goals then the vendor is rewarded with a share of the savings or potentially more importantly of the increased revenues.

This approach has benefits for both the client and the vendor as value-based pricing focuses management attention on the achievement of the client's business goals.

Value-based pricing provides vendors with an incentive to address business problems rather than just minimising their own commercial exposure while delivering a technical solution.

The emergence of this concept is the result of a maturing of IT development and integration processes, in turn a consequence of the increasingly embedded role technology plays in business processes.

It is becoming increasingly inappropriate to examine, and more importantly change, business processes without examining, understanding and changing the technology underlying and facilitating these processes. IT is also becoming a much more significant cost as its uses change.

Vendors and users now concede that it is artificial to draw a distinction between strategy and implementation; that unless one knows what each part plays, one cannot understand the other; that one needs strategy

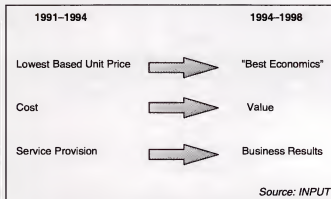
knowledge to do successful implementation and implementation knowledge to do strategy.

As a result technology services organisations are being forced to understand business issues which historically have been above them on the theoretical strategy/operations "value chain".

Exhibit 1 illustrates a number of key developments as IT development and integration projects moving from lowest based unit prices towards "best economics"; from cost to value, or from service provision towards business outcomes.

Exhibit 1

Trends in IT Development and Integration Project Delivery



Supporting this dynamic is the fact that many major user organisations have, over the last five years of recession and slow post-recession growth, been through huge cost saving engagements with management consultancies and find now that there is not a lot more cost to be stripped out.

Consultancies and the new "management services" organisations, as vendors such as EDS and Andersen Consultancy could be characterised, are thus moving more towards revenue generation engagements and are

looking for shares of the value they claim process-rich-IT systems will deliver.

The scepticism these developments are producing (from vendors not driving these concepts) is understandable. There are clearly serious complications in defining and isolating specific measurable metrics which can be used to judge the long term success or failure of a contract.

The ability to separate the causal correlations between the development of an IT system and the subsequent fortunes of a company is a key issue.

Shareholder value is the most difficult one of the business metrics to relate to. Defining deals on this basis will undoubtedly be difficult to negotiate with senior client executives.

Sceptics have also raised the question as to whether the dynamic of value-based delivery of products and services is happening in other business areas and if not, why not.

Why is this going to occur in IT/business relationship; is there anything intrinsically special about IT?

The concept of value based delivery is also occurring at the same time as partnering is becoming a key concern for IT users and vendors.

A willingness to enter into partnering relationships based on trust is not intrinsic to north European cultures, where organisations have historically only been comfortable dealing on a contract basis. Value and long term business relationships challenge these historical tenants.

Partnering needs to be based on shared risks and shared rewards and vendors will need to put money where their mouths are; quick win,

short term thinking will have no place in this types of relationship. When, at the beginning of a contract it is unclear what the configuration of the deal is going to be, and it is therefore difficult to hammer issues into a hard contract, both sides of the equation will be required to demonstrate good deals of trust, with the onus, if anything, being heavier on the vendor's side.

The jury could be said to be still out as to whether users are demanding these approaches; users are certainly wise to sales messages of partnership and value which come to them through an historical filter.

Some users have stated that value based contracts appear a bad basis for commercial relationships and potentially represent a lawyers' field day.

Vendors are selling to experienced people who have seen many different contract approach appear and disappear; vendors need be aware that often they are selling to bruised and sceptical people who may firstly believe that partnership and value are not the way to proceed, and secondly regard them purely as marketing hype.

The key to operating value-based contracts is in defining what are the projects business benefits and how will these be measured. Only then can contractual arrangements be struck towards payment; a 50% payment up front and a delay of 12 months before final payments are made may be fairly typical.

Vendors face the question of whether these delays, and potentially longer delays of 2-3 years before the results can be proved and payments be made, are acceptable and attractive.

Vendors Position New Value-Added Services

The vendors who have been most aggressive in driving these deals, Andersen Consulting and EDS, argue that IT delivery has now moved on and is now not just about delivering to SLAs, not even about reducing unit costs, but about bringing value to shareholders.

This, they argue, is the new paradigm and defining characteristic of the next generation of professional services firms and brings with it a new set of rules of engagement.

EDS are aiming to take clients from initial "insights" through to the implementation that results from these insights. This represents a major change for EDS and information services firms in general and requires change in everything from the refocusing and reskilling of account teams through to investments made at senior levels to facilitate higher level account management.

EDS suggest that their business is now about finding where the added value is in their potential client relationships. EDS would argue that users want to know that the vendor can deliver the IT solution, not just advise on it.

EDS argue that vendors cannot bring value to deals unless they understand client's business drivers. This is why the consulting part of their operation, A.T.Kearney, is a strategic imperative.

As a result of these strategic moves EDS is withdrawing from basic IT management bids; this is not where they perceive value to be.

IT was not involved in strategy and planning a few years ago. Now it is, as firm's strategies and plans are more closely tied to what can be achieved by information technology.

For example ATM was a technology issue that changed the way that banks were run. First Direct and DirectLine Insurance are examples of businesses that have been created around new uses of IT.

EDS are engaged in value-based deals with IBOS (the Inter Bank On-Line system) and the Royal Bank of Scotland. EDS state that they have not yet *not been paid* for a contract written on these terms but that the benefits will begin coming on stream in 1996.

The next logical stage in this process is to create a separate enterprise to run an outsourcing operation. Andersen Consulting's business with Northwest Airlines for ticketing and booking fits this category.

Now partly owned by Andersen Consulting this is a stand alone business where risk exposure is increased but potential revenues are too.

Another major value-based deal Andersen have been involved with is a contract with the US pharmaceuticals company Astra Merck where Andersen have been involved in reinventing pharmaceutical production and retailing process and are now sharing a proportion of a \$5 billion per year drugs business with Astra.

Other similar deals include ones with the US firm Planters Lifesavers and Fiat - New Holland where Andersen manage many of the production business processes on a shared reward of sales basis.

Impact on the European Systems Integration Marketplace

The ability to engage potential customer's senior executives in discussion about the contribution technology can make to an organisation in terms of value rather than purely cost is giving certain vendors an edge

in the marketplace's consideration of service providers.

The development of the concept of "value-delivery" is part of the process of creating a differentiated, premium position and attempts to move a vendor up the value chain of positioning, pricing, and profitability away from pure IT based systems integration where margins are under intense pressure.

The development of this "value proposition" is in many ways analogous to the development over the last five years of Business Process Reengineering which, though as a theory has had many detractors, has had a significant impact on the systems development and integration industry.

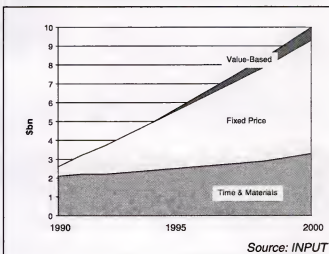
As in the early period of the BPR movement there are, as yet, only fragmented details about the actual structure of these types of contract; vendors are, unsurprisingly, cautious about laying competitive details on the table. This tantalising situation of course plays into the hands of the doubters and sceptics.

Vendors should regard value-based contracts as another string to the bow not another bow; this is also undoubtedly a large versus small project issue. Is it only going to be large projects where business metrics come into play.

Exhibit 2 illustrate the growing role this approach will play in the European Business Integration market over the next five years.

Exhibit 2

Contractual Approaches to European Systems Integration Projects 1990-2000



Some organisations will experience significant problems and become spectacularly unstuck. Scandal will no doubt drive out the charlatans and will emphasise the firms with a strong brand image.

The market will also see a number of vendors getting burnt because they didn't understand the real implications and then cutting down drastically, the deal making culture is not appropriate to these situations.

However, more and more contracts are being struck in this way (Delivering IT to non IT metrics) and though it should be recognised as a leading edge, and that the proportion it represents of overall contracts is still small, it is a major stage in the growing maturity of the marketplace.

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Research Bulletin

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Focus On "Competitive Domains" Key For Integrators

The European Business Integration (BI) market has grown robustly since the European economy recovered from recession in late 1993.

However, this growth has hidden a number of important structural changes in the market which threaten vendors' approach to competition in the coming years. Perhaps most importantly, growth has disguised the fact that the range of strategic competitive choices open to BI vendors are becoming more limited as clear groupings of market positioning, driven by customer needs, emerge.

Increasing competitive conditions coupled with new market entrants, primarily driven by the commercial impact of technological *convergence*, are ensuring that sustainable, profitable, marketplace *differentiation* has become crucial.

This bulletin examines these dynamics and in particular focuses on:

- Strategic positioning across the BI services spectrum
- The impact of "Convergence" driven new market entrants

- Changing critical success factors as conditions in the marketplace themselves change.

Strategic Positioning Across the BI Services Spectrum

The European BI market is currently at a period in which a two-tier marketplace is merging, in which vendors able to respond to the increasingly competitive commercial pressures are becoming separated, and differentiated in the marketplace's perception, from those finding marketplace conditions increasingly arduous.

Those vendors emerging in the top tier are also strenuously developing creative new approaches to service delivery and the marketing of their capabilities which will see them extend their leadership over the course of the late 1990's.

Beneath this increasing concentration of leading vendors the marketplace is extremely fragmented, and becoming more so as vendors attempt, in the face of pan-European, broad based major service players, to redefine competitive domains appropriate to their skill sets, geographical coverage, vertical market

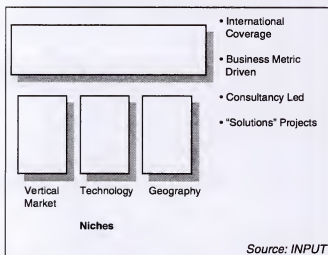
experience, and perhaps most importantly, their financial capitalisation.

However, the overall size of the BI market allows smaller competitors enormous opportunity to operate successfully and profitably in myriad niches and specialisations. Crucial to operational success however, will be the adoption of a coherent, strategic vision of an organisation's core competitive domain.

There are a number of different strategies appearing within the broad Business Integration matrix "T" model. Exhibit 1 provides a schema of the market positioning leading BI vendors are adopting.

Exhibit 1

Business Integration Marketplace — Competitive Coverage



Pan-European Full Service

Critical mass, of whatever offering, will become increasingly important. Although there has been a decline in the number of "mega" contracts, size will still be of crucial importance as vendors attempt to bid for pan-European, infrastructure based assignments.

Pan-European Niche

Customer or vertical market orientation is also becoming a more pressing requirement. The debate around vertical markets has long raged in the industry, as with many other industries, but there appears to be an increasing number of vendors who are structurally reorganising their services offering in this way at present; Digital and Sema Group are two examples.

Another approach is a non-geographical, but focused approach. Companies choosing to play in this way are basing their service offering on a niche capability, usually based on a software application, which is applicable across national boundaries. Players in the CAD/CAM solutions market appear to be operating in this way.

National Market Full Service

Perhaps the most threatened position in the European BI marketplace is the local territory, broad professional services based firm. Vendors such as RAET and debis Systemhaus through alliances, have taken actions to transition themselves away from this precarious position.

National Market Niche

This will be a sustainable position as long as the niche grows and the services offering is "first class". This positioning has the inherent problem of offering little protection from the vagaries of wider competition; multiple service offerings offer vendors the opportunity to avoid the full affects of cyclical downturns in one particular sector, or indeed technology.

Across all of these approaches there will be increasing partnering, alliances and consortia bidding with vendors attempting to build opportunities in non-local markets. As local markets are expanded into by international

players local players need to isolate degrees of specialisation and quality of services.

Although a large proportion of lower end BI projects will inevitably continue to be undertaken by home market focused vendors, those services vendors targeting large multinational accounts, of which AT&T suggest there are only 2,500 world-wide, will increasingly need to obtain access to an international infrastructure.

Service companies with an international network will have more and more of a competitive advantage in contract bidding.

Vendors already operating "multi-locally" are attempting to either extend or optimise their international reach and or increase their degree of integration by entering into other IT segments.

Vendors that do not have the financial resources to take pro-active steps in this period of change are becoming more vulnerable to acquisition as competitive pressures increase.

Whilst the classic "T" model of the management consultancy market, broad coverage aligned to depth in skill sets, is becoming more applicable to Business Integration services delivery, at the same, ironically, the mainstream consultancies are finding it increasingly difficult to successfully operate this "T" model. The problems that the "big six" consultancies have had in bridging strategy and implementation has left a gap in the market which vendors such as EDS and CSC are attempting to fill.

One of the key issues being faced by all BI vendors is to meet the at first seemingly irreconcilable dynamics of specialisation and internationalisation; a dynamic driven by the organisations BI vendors attempt to serve.

Large multi-national corporations, the primary target market for BI vendors, are having to compete against international benchmarks of performance where it is no longer an operational objective to be a strong player, in whatever field, by local standards.

Two of the most prominent approaches vendors have adopted in the marketplace to address these issues, have been to position around being regarded as "solution based" or "technological/platform based" providers.

This has been forced by the realisation that sustaining a full service, broad based, solutions approach requires extremely broad skill sets, geographical coverage and marketing and financial resources.

This has evidently become too demanding for all but the largest, most well capitalised vendors.

The solutions based approach, predicated on the concepts of delivering value, communicating in business rather than technology terms, relegating technology to mere appendices in proposals, was perhaps the chosen marketing stance of most, if not, all vendors in the early part of the 1990's.

It has become clear however, that only a few vendors are continuing to drive down this particular strategic route.

Many vendors including as Digital and Sema Group have now refocused their market offering around a small number of key vertical markets and platforms. Of course, within this development these vendors have retained much of the language of the broader solutions based approach, but it is clear that they are no longer attempting to compete head to head with the largest of the pan-European solutions based services vendors.

There has been a perception abroad that not to be able to play at the broad based approach was in some ways an illustration of a weakened position. This perception was of course largely instrumental in driving vendors to attempt to proffer full service provision in the first place.

What has become evident however, over the last year is that competition need not be purely judged against broad macro market parameters. Vendors such as HP have been extremely successful within tightly defined target market areas.

By refusing to be drawn into competition outside of areas of their key capabilities HP have established world-class, highly profitable domains where they are regarded by the marketplace as a key player.

By defining these areas, then going into the marketplace to partner with other vendors, both full service and platform based, they have established a model approach to BI marketplace competition.

HP's success, noted by many other vendors, has become a benchmark by which other vendors are attempting to restructure their own service offering.

Full service, broad based and solutions driven services provision will essentially dominate the high end area of the marketplace, with vendors operating at this level demonstrating leadership in its many facets, but the BI marketplace is of sufficient size to support many other operational models.

Vendors should be wary of attempting to be dragged down inappropriate competitive channels.

New Market Entrants Alter Competitive Domains

The BI market is attracting new market entrants at present, such as telecommunications operators, who in attempting to transform themselves into global information services players see the Information Solutions arena as a key competitive battlefield.

The convergence of information technology and communications, long heralded, is finally becoming a reality and will increasingly influence the future development of both areas. It will no longer be possible to think about IT and communications technologies in isolation; this is leading to increasingly interlinked and inseparable supply side value chains where BI vendors will take smaller market shares of larger markets. This alters the possible competitive domains BI vendors are able to adopt significantly. Vendors need to take a broader view of opportunity, and their ability to address opportunity than they have hitherto done.

The marketplace is undergoing a period of hectic self reassessment as vendors study their own network-centric capabilities and offerings and jockey for position in these mutating value chains. These include both those organisations who have, and those who have not, traditionally been perceived as major players in communications intensive IT.

Examples of the new relationships include the increasing presence of MCI in the European market. MCI own 10% of Rupert Murdoch's News International, whilst British Telecom have a 20% stake in MCI centred on the international telecom services company Concert. MCI have also recently bought the integrator, SHL Systemhouse, in order to leverage and exploit the development and

integration synergies these relationships bring.

SNI are involved in a joint venture with Mercury Communications; Andersen Consulting have tied up with the US company, General Electric, in order to finance and manage large SI deals.

ATLAS, the joint venture between France and Deutsche Telekom with Sprint potentially involved as well, is already generating in-house and externally based integration projects. Unisource, the Swiss, Spanish, and Swedish telecom joint venture is also generating SI project based opportunities, from which PTT's are attempting to benefit.

Convergence is driving many other areas of industry "mutation" with railways and utilities companies attempting to offer information services through their existing delivery channels; "Hermes" the European railways joint venture is offering telecommunication services, as are Generale des Eaux in France.

In the UK, Northwest Electricity and Northwest Gas are establishing a joint venture organisation to offer telecom services. Amdahl are also involved with British Gas in establishing a joint integration organisation.

Clearly, communications are playing an ever more important role in information based industries and vendors such as AT&T, BT, and Deutsch Telekom, are well positioned to grow their solutions based revenues.

Their existing size, financial muscle and expertise in both account and project management clearly also gives them capabilities which will enable them to bid for the larger solutions based contracts in which many professional services vendors would find difficult to profitably compete.

Convergence of voice and data technologies is driving convergence of commercial value chains; altering existing ones and creating altogether new mutations. Liberalisation is unleashing and accelerating this process.

However, those with vested interest are not graciously giving ground to new players and these new agendas. Liberalisation is not a homogenous force across Europe and is impacting at different rates in different countries; France's experience is clearly shaping up as quite different to Germany's. National PTTs are, with varying degrees of political backing, fixed on retaining their dominance and control over the majority of basic service provision and attempting to leverage new services from these entrenched platforms.

IT is enhancing traditional services and creating new forms of potential service. The strategic importance of new technologies dictating how influential IT is in emerging value chains. PTT's are utilising new IT led technologies but at the same time are attempting to control the channels by which these technologies impact the user market.

Managed networks (both data and voice) and their interface into the wider telecom infrastructure is one of the key areas in which PTT's, IT vendors, and new telco players compete most aggressively, whilst at the same time offers enormous opportunity for lucrative partnering, the first sign of value chain alteration. Those vendors already network-centric will undoubtedly have a competitive advantage over those who have traditionally been either more mainframe orientated or purely focused on IT professional services.

Within Europe increased outsourcing of both the development and operation of mission critical business systems, within the private and public sector, is positioning value led

services vendors as the dominant force in the utilisation of technology. Product suppliers are increasingly becoming subservient to them, although clearly they publicly deny this.

"Best of breed" products are extending market leadership through a conjunction of critical mass and subsequent relationships with those value led services vendors who implement and manage technology.

There will not be a single winner in the marketplace, the market now being too large for any one vendor to control à la IBM in the late 1970/80's, but winning relationships à la Intel/Microsoft/EDS. Those closest to the ultimate customer will always be the ultimate winner.

Focus on core competence, margin pressure and increasing competition will continue the process of vertical market disintegration. Manufacturing is chasing lowest priced labour making national boundaries irrelevant. The ability to operate as and manage world-wide alliances, to support international clients, is fast becoming the key differentiator for IT organisations; within the proviso "this company has no eternal friends nor enemies but only eternal interest".

Changing Critical Success Factors

Service providers who succeed in establishing successful, profitable domains in this period of change will be extremely well placed for the medium term, whilst those who do not will increasingly find competitive conditions severe. In short, big winners and big losers are emerging against a background of increasing underlying risk in the industry due to a mixture of the complexity of systems requirements and increasing competition.

To benefit from the enormous opportunities that do exist, service providers need to act with vision, timing, leadership and careful

risk analysis, whilst continuing to keeping to the forefront of their agenda the needs of their customers.

The European BI marketplace faces the constant threat of commoditisation which, while in many ways good for the customer, continually threatens the service offerings of vendors. This dynamic forces vendors to unceasingly reinvent themselves as higher added value providers; firstly just to remain as competitive as they presently are (i.e. others are undergoing this process), and secondly, to attempt to achieve market leadership.

Michael Porter's famous dictum is particularly appropriate; if you are not expanding into other spaces, others will expand into your space. There are a number of aggressive players presently operational in the marketplace who have this creed uppermost in their strategic plans at present. Of course in addition, higher value-added services attract higher fees and profit.

Conversely, vendors face a situation where customers are increasingly offered choice, through the increase in competition. This situation threatens to create an environment of decreasing customer loyalty, where long term account control is hard to achieve and where a customer if not fully satisfied is able to switch service provider with considerable ease. The adoption of standard technologies is facilitating this dynamic whilst at the same time, intense competition is forcing down prices, putting significant pressures on margins and squeezing out the inefficient.

Exhibit 2 illustrates five key critical success factors that vendors should be addressing as the BI marketplace continues to develop over the next three to five years.

Competitive Domains — Vendors will need to demonstrate to the marketplace clear coherent

visions of where they will compete; an unfocused, entrepreneurial, all things to all people approach, is increasingly becoming untenable. The BI marketplace provides enough opportunity for a wide variety of players; however vendors must choose where they want and are able to play, rather than be forced there through circumstance.

Exhibit 2

Critical Success Factors for European Business Integrators

- Focus on "Competitive Domains"
- Focused Marketing
- Price Competitiveness
- Market Responsiveness
- Credible Reinvention of Capability

Source: INPUT

Focused Marketing — Vendors must skilfully communicate these visions to potential customers, illustrating the world class qualities they are able to bring to these selected competitive domains.

Price Competitiveness — Successful vendors will be those able to deliver their world-class capabilities and service offerings at competitive costs, allied to creating value rather than primarily containing cost for their customers. Broad solutions based vendors must deliver competitive costing through

critical mass, whilst dynamic niche players need to focus on premier customer service.

Market Responsiveness — Vendor ability to respond and react to the needs of the marketplace and deliver more quickly than competitors will be crucial to an organisations success. The increasingly fierce conditions of marketplace competition ensure that the European BI marketplace will not be a place for the hesitant or the fainthearted.

Credible Reinvention of Capability — Service vendors face a period of unprecedented change and turmoil but a period of great opportunity in which they must face the pressing need to become purely customer driven. Vendors must move from being technology organisations to customer services organisations, aiming to deliver business options rather than technological possibilities.

However, this reinvention must appear, indeed be, logical, strategic, achievable, and driven by the needs of the marketplace. The market is awash with examples of vendors horizontally or vertically extending their reach into areas where they are clearly unable to add value to their customers base.

During change, those vendors who are able to outpace the marketplace, understand the relationship between risk and reward, and reinvent themselves credibly, will establish market leadership for the medium term.

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Research Bulletin

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SAP Professional Services Market Booms As Competition Increases

European IT user's demand for SAP-related systems development and integration services currently appears insatiable and marketplace conditions look set fair to continue generating enormous opportunity for Business Integration (BI) vendors over the medium term.

The professional services market for SAP-related skills is however, becoming crowded with "me-too" service offerings. Established vendors and new market entrants, attempting to benefit from these boom conditions, face the threat of an increasingly competitive marketplace in the "second wave" of SAP adoption.

Established SAP services vendors need to recognise these dynamics and guard against the complacency rapid growth can often create, whilst vendors presently entering or thinking of entering the marketplace need to identify ways of differentiating their service offering.

This research bulletin examines these issues in the context of:

- Analysing SAP's recent financial results, contract awards, and the current state of the SAP marketplace
- Examining key vendors of SAP related professional services.

Financial Results, Contract Awards, and the Current State of the SAP Marketplace

Over the past three years, SAP has grown from being an accounting and manufacturing software firm selling its R/2 software largely to mainframe customers in its domestic market of Germany, to being the fifth largest software company in the world today.

This success has been achieved largely as the result of the fortunate timing of the marketing of its R/3 software package, the first product to serve the growing needs of the client/server business environment, at a time when client/server interest has dramatically accelerated.

Another key factor in this success has been that R/3 enables the integration of operations in international organisations and particularly

those operations undergoing technology driven reengineering.

The R/3 software package, made up of modules of software, encompassing areas of accounting, human resources, manufacturing and logistics, has generated huge opportunity for professional services firms such as management consultancies as a result of user organisations need for SAP implementation and business reengineering skills.

Exhibit 1 details a number of recent contract awards.

SAP achieved world-wide sales in 1994 of \$603m. Sales in the US climbed 70% to \$350m.

Sales continued to rise strongly, with a 57% gain to \$1.15bn (DM1.79bn) in the first nine months of 1995.

However, profit slowed to 47% compared to growth of 80% in the first nine months of 1994, due in part to costs of developing its services network in new markets. SAP has attempted to expand its world-wide customer support offering and has recently constructed a new Support & Service centre at its Walldorf headquarters.

One of SAP's key developments in 1995 has been the development of its relationship with Microsoft; Microsoft is now porting SAP's financial software program onto its Windows NT server operating system and plans to offer this into the marketplace in 1996.

Exhibit 1

SAP — Recent Contract Awards

Client	Date contract announced	Contract value	Contract duration	Contract nature
Tate & Lyle Sugars	02/11/95	\$900,000	Phased migration of modules over 2 years	R/3 to meet needs of all business entities along supply chain process and to enable T&L to manage business based on customer demands
BMW	25/10/95	"Several million dollars"	Next 3 years	SAP accounting software already exists. New installation will enable 3,000 employees to access R/3 software
Inland Revenue	01/10/95	\$1.1 billion		Supply of human resources software
Daimler-Benz	27/04/95	\$11.8 million		R/3 already used – plan to implement software company-wide
23 contracts from various N. American customer - include. Colgate-Palmolive, BOSE, Syntex & 3COM corporations	05/09/95	\$40 million		

Source: INPUT

1996 will also see SAP further penetrate the insurance, banking, retail and energy markets, undertake more business with medium-sized companies with a simplified version of R/3, and reduce drastically the time taken to introduce R/3 into customer sites.

Leading Vendors of SAP Related Professional Services

The development of a broad range of relationships with other software, hardware, and services vendors has been a deliberate and carefully undertaken strategy which has proved highly successful for SAP.

There are currently around 50 accredited hardware and software partners across Europe but this number is growing as other vendors attempt to benefit from the SAP success story.

SAP themselves have 50 business consultants in the UK alone and are looking to rapidly increase this cadre. However, the main thrust of the development of the professional services market has been in creating a "partner based" market within firstly, the traditional management consultancies and secondly, with other IT vendors.

SAP are addressing the issue of shortages of SAP skilled consultants by investing \$3m on a training centre close to Heathrow in the UK, in an attempt to increase SAP literacy. The aim is also to attract trainees from abroad in order to train users of the same software together.

The company aims to increase the number of SAP-skilled partners and consultants to more than 1,000 over the next twelve months.

There are currently between 800 and 900 SAP consultants in the UK outside of SAP itself.

The majority of these are in the "Big Six", but a growing number are in smaller consultancies such as Druid and 1-2-1 Consulting. INPUT estimate that there are currently 3,000 SAP consultants world-wide.

SAP Logo Partners provide consulting services for the installation of SAP software including business re-engineering consulting, project management, functional application expertise, industry knowledge, technology architecture and systems integration services.

SAP recognises two types of Logo Partners - global and national. The global level represents consulting and services organisations which are present with SAP expertise in all the major country markets. The national level is managed by SAP affiliates for their country market.

Of the "Big Six" management consultancy firms Andersen Consulting, ICS, Deloitte Touche and Price Waterhouse have become most involved in the SAP explosion.

Andersen Consulting is arguably the leading supplier of SAP related services, followed by ICS and Price Waterhouse. However, ICS and PW arguably possess greater knowledge and capabilities in supporting R2 and R3 work.

Deloitte Touche are often involved in SAP consortia, as are Coopers & Lybrand. This partnering-based model business is leading these two vendors into niche areas of the marketplace rather than into the full-service, broad services spectrum.

Vendors, such as IBM, SHL, SNI and Hewlett Packard are all also developing extensive SAP software capabilities.

Key Suppliers of SAP related services

1. Andersen Consulting

Andersen Consulting is a full-service provider for SAP implementations and have approximately 800 SAP consultants involved in actual project work.

Andersen Consulting were recently presented with SAP America's Award of Excellence for the second consecutive year.

The Award of Excellence, presented on September 19th 1995, at SAP's annual user conference, is in recognition of Andersen's outstanding customer service and development capabilities.

SAP and Andersen have undertaken a number of steps to build on their relationship and have recently announced the release of Version 1.0 of R/3 IS-Oil Downstream a software program which is being marketed to oil industry organisations. This leverages Andersen's existing strengths in the on-shore and off-shore oil industry.

IS-Oil is one of the first SAP software products to be fully customised to the needs of a specific vertical market. IS-Oil is a packaged system that integrates and consolidates information throughout a user organisation.

As well as satisfying an oil company's downstream business transaction processing requirements, the software can facilitate the shared handling of a number of core transactional processes, handled separately by each unit, division or company within an enterprise.

SAP and Andersen Consulting created their joint IS-Oil Alliance in order to deliver the benefits of their successful R/2 Downstream

IS-Oil product for mainframes onto an R/3 client/server platform.

Andersen's SAP-related projects are typically complex, lasting 12-18 months and often involving 12-15 people. Pricing is mostly on a fixed price time & materials basis.

As a quasi management consultancy, without a dedicated sales force, each operational region is responsible for SAP business development.

Andersen has recently moved away from the localised "SAP - Centers of Excellence" and is now utilising Regional Competence Centres in an attempt to leverage its skills sets more effectively across regional operational units.

Recent contracts Andersen have been involved with include a major SAP implementation for British Rail and a project for Telephone and Data Systems (TDS), the first U.S. Telco to implement SAP R/3 software.

Andersen announced in September 1995, a joint project called "World-Class Information" (WIN) with TDS envisaging that this project could act as a model for other telcos' implementing SAP's software.

TDS selected Andersen Consulting as their preferred partner for this project and the subsequent commercial exploitation of it due to Andersen's experience in R/3 implementation coupled with their industry knowledge.

TDS anticipate that the system implementation and new processes will assist the company in reducing accounting and finance costs, increase procurement leverage and eliminate technical risks and problems of outdated, multiple systems.

2. ICS

ICS is a competing subsidiary of Deloitte Touche and was established in 1990 to provide SAP implementation services.

Headquartered in Chadds Ford, PA, ICS now have 20 offices throughout North America, Europe, Asia-Pacific and South Africa.

The company aims to provide services and products designed to help clients leverage the benefits of SAP software, via results-oriented, integrated transformation services.

ICS also delivers SAP-complimentary software products, education and training and change management.

ICS's experience in SAP software, BPR and industry-related issues has accredited the company as a Global Logo Partner for SAP R/3.

The firm now has over 1,000 professionals serving 100 customers world-wide.

The company's strengths are:

- The speed at which ICS can reduce SAP implementation time — up to 50%
- A management team made up of 14 SAP professionals with a combined total of 130 years experience of SAP software
- Industry-specific expertise, drawing on the knowledge from Industry Centers of Expertise (ICOE) and also from a cross-industry Center of Expertise, the combined resources of ICS and its parent company
- A practice committed to enabling business change, as defined by the customer, both large and small; the goal being quick knowledge transfer and client "self-sufficiency".

This latter point has been formalised by ICS's method of *Reality-Based Consulting*, which recognises that business transformation inevitably involves both rewards and risks. By minimising the risks and simplifying the transformations as much as possible, SAP implementations are scaled, ICS claim, to accomplish each customers unique objectives.

ICS have developed *FastTrack 4SAP*, a proprietary method for rapid implementation, using a building-block approach to provide quick knowledge transfer and client self-sufficiency.

In order to maintain functional expertise among its consultants, *KnowledgeLink 4SAP* is an initiative which rotates full-time staff between differing roles in client engagements and internally every 12 to 18 months.

3. Deloitte Touche

Deloitte Touche offers full service SAP capabilities and have 300 consultants experienced in SAP in N. America, 100 in Europe, 40 in Africa and 50 in Asia/Pacific.

Deloitte Touche claim to provide more senior level personnel on SAP projects than any of their competitors claiming a ratio of 1:3 for senior to junior staff compared with the 1:6 ratio of other vendors.

Deloitte Touche's SAP related business plan focuses on developing Centers of Excellence for vertical market implementation of SAP and moving experience of utilising other enabling technologies to SAP implementations.

Sales leads are mainly internally generated through the firm's existing business development channels. Each operational region has an SAP Practice Manager who is ultimately responsible for selling assignments.

Typical projects take 12-18 months; pricing depends on services provided; full-service offerings tend in contrast to other vendors to be on a fixed basis whilst individual services are proffered on a time and materials basis.

4. Price Waterhouse

Price Waterhouse have 500 experienced SAP consultants worldwide. US operations began in 1988 with 16 consultants which has since grown to 386. In 1994 PW won the overall SAP Award of Excellence.

Presently PW are the only Big Six firm to be a Certified SAP trainer which complements their SAP lifecycle implementation offering consisting of, analysis, project team training, design, construction and implementation.

SAP related sales leads are generally created internally as with Deloitte Touche as there is no dedicated SAP sales force. PW is very selective in that they look for full-service partnering opportunities in their geographic areas. Pragmatically the firm does also work on a time and materials basis.

Recent research indicates that PW fees can run as high as £20,000/day over 12-18 months.

5. IBM

IBM, one of the few SAP Global Logo Partners, aims to have over 1500 SAP Service Line dedicated resources by year-end 1995 on a worldwide basis and 2,000 by mid-year 1996.

IBM have recently created the *Worldwide SAP Service Line Initiatives*, a concept based on the idea of a virtual organisation using identical tools and methodologies.

This key initiative for Big Blue is being driven simultaneously across all territories.

IBM's SAP related consulting services are now delivered by approximately 950 SAP consultants in over 30 countries worldwide.

Subsequently, IBM are aggressively hiring SAP skills from the marketplace, forcing price points up, as an attempt to leverage SAP professional services across its international network.

Other organisations extremely active in the SAP professional services arena include SNI, who produced worldwide SAP related revenues of \$290m in 1994-1995 and currently have 500 SAP professionals, and Hewlett Packard who are rapidly growing their professional services offering.

This Research Bulletin is issued as part of INPUT's Business Integration Programme – Europe. If you have any questions or comments on this bulletin, please call your local INPUT organisation or Ben Pring at: INPUT, Cornwall House, 55-77 High Street, Slough, Berkshire, SL1 1DZ, Tel: +44(0)1753 530444.

Vendor Profile

A Publication from INPUT's Business Integration Programme – Europe

1996

Logica Generate's Record PBT in 1995

Logica are consolidating their reputation as one of the leading, independent, Business Integration (BI) vendors in Europe.

1995 revenues were up 19% to \$390m (£250m), while profit before tax climbed a record 50% to \$31m (£20.3m).

The core themes behind Logica's recent success have been to move the organisation away from its heritage as a largely technical supplier towards a more marketing led and *business-value* focus and the search for "repeatability"; the attempt to utilise solutions developed in one vertical market, niche or geography in another.

This bulletin presents details of Logica's recent impressive performance which represents the fulfilment of CEO Martin Read's attempt's to redefine Logica's operational approach over the last two years and in particular examines:

- Recent financial results
- Service offerings
- Contract awards and recent projects.

Recent Financial Results

Financial results improved during 1994 following significant re-organisation, putting Logica in a good position to place more emphasis on the expansion of its international coverage. In the past, no international strategy was evident, investments being made on an ad hoc basis to satisfy project-based requirements. Investment is now necessary to enable Logica to bid for very large Pan-European contracts.

This improvement continued in 1995 with the share price reaching 487p at the end of September 1995. In the recent past Logica's share price made it seem vulnerable to hostile bids, however, in 1994/1995 the share price reached a higher and more stable level.

Exhibit 1 presents an analysis of Logica's 1995 revenues by country market.

Exhibit 1

Logica Plc
Estimated Revenues by Country
Europe 1995 in \$ millions

Country	Revenue in \$ millions	Share
UK	257	66%
Italy	54	14%
Netherlands	47	12%
Germany	15	4%
Belgium/Luxembourg	7	2%
Switzerland	7	2%
Sweden	3	1%
Denmark	1	<1%
Eastern Europe	1	<1%
Total European S&S Revenue	390	100%

Source: INPUT Estimates

1995's results suggest another slight shift towards the European (Continental) and North American operations. By December 1994, the UK accounted for 48%, the rest of Europe for 28%, North America for 14% and Asia Pacific for 10% of Logica's revenues.

Exhibit 2 analyses these change in emphasis over the period 1992 - 1994 whilst Exhibit 3 shows Logica's revenue analysed by INPUT delivery modes.

Exhibit 2

Logica Plc
Three-Year Market Analysis by Region,

Region	1992 Revenue in PS£ millions	Share	1993 Revenue in PS£ millions	Share	1994 Revenue in PS£ millions	Share
United Kingdom	122	61%	130	60%	115	50%
Rest of Europe	40	20%	51	24%	62	27%
North America	24	12%	22	10%	30	13%
Asia Pacific	15	8%	14	6%	22	10%
Total	200	100%	217	100%	229	100%

Source: Logica

Exhibit 3

Logica Plc
Revenue by Delivery Mode, 1995
\$ millions

Delivery Mode	Revenue in \$ millions	Share
Systems Software	10	3%
Applications Software	30	8%
Processing Services	20	5%
Turnkey Systems	70	18%
Professional Services	151	40%
Systems Integration	100	26%
Total Software & Services	390	100%

Source: INPUT Estimates

Service Offerings

Logica's main routes to growth in 1994/95 are based on expanding existing business relationships. Some of these, such as government, defence and transport, will remain primarily national businesses, whilst others offer the opportunity to boost Logica's international network.

Logica recognises the importance of partnerships in support of its systems integration activities, and is seeking to establish relationships with both clients and other vendors. Recent examples of this include the formation of Speedwing, a joint venture with British Airways, and a co-operative business agreement with Yorkshire Water.

The company has also established a strong relationship with Tandem involving a co-operative marketing agreement covering the latter's intelligent networking application

software products and the joint development of X.400 products. Future projects will thus be handed to an increasing extent through multinational consortia in order to support Logica's strategy of extensive international coverage.

Logica is re-enforcing its partnerships with equipment vendors. The company has assisted IBM in developing a number of software products and views this activity as a key means of gaining early product information, thus providing the opportunity to use the products in systems integration projects or to assist in early implementation.

The company will continue to develop its own software *kernels* (software building blocks that are used to replicate generic applications functionality). Additionally it is increasingly keen to form partnerships with vendors of key software products since it recognises the increasing requirement for such products within systems integration projects.

With its considerable telecommunications expertise, and its own gateway product, Logica may also expand its network integration activities.

However, Logica remains a specialist in technical computing and will continue its research into leading edge technologies such as neural networks, speech and language technology and signal processing.

Logica has a long history of implementing large professional service projects and has built strong positions in the space, telecommunications, energy and utilities sectors. Considerably influenced by the company's telecommunications expertise and product portfolio, Logica has built up extensive capabilities in the banking and finance sector and has recently expanded strongly into transport. It is still

comparatively weak in the general manufacturing and commercial sectors where the company seems to play a supporting professional services role to equipment vendors, for example IBM. Logica may soon increasingly apply its network integration skills across a broader range of industry sectors.

Logica increasingly reflects the more global requirements of its clients by setting up international lines of business in its key verticals, namely finance, telecommunications, energy and utilities. Exceptions to this trend are defence and government operations, in which Logica faces severe competitive, administrative and political restrictions in exporting its services.

However, poor geographical coverage is an obstacle to the realisation of Logica's vision of becoming a leading worldwide independent consulting, systems integration and software company. Although there has been some new investment with acquisitions of smaller software companies in the US (Precision Software Corp. in May 1994, Synercom Software in September 1994), the company still has a long way to go to catch up with its major competitors who are endeavouring to establish a significant presence in all of the principal European countries. Logica's business is still mainly generated in the UK, Netherlands, Italy and to some extent Germany.

Logica recognises the role of software products in supporting its systems integration activity. The company's software product portfolio includes:

- ON/2, a financial transaction processing system
- BESS, a modular global funds transfer system
- FASTWIRE, a communications product
- An X.400 product being developed in conjunction with Tandem
- Logica Transaction Director for interconnection of applications across differing hardware platforms
- Storenet/2, an EPOS networking product
- Master Control 2000 for operational pipeline management
- ENDS, for electrical utilities
- TRACE, a personnel movements tracking product used by oil companies
- CARDS, for manpower planning and colliery management
- GALLERY 2000, a stills (photographic image) library management system.

Recent Projects

Logica's Precision Software division has been working with Bank Julius Baer & Company Ltd, a top ten Swiss bank holding company. Logica provided the bank's New York affiliate with the capabilities for an integrated commercial loan processing system, based on the Loan Syndicator product. The project claims to having reduced staff overheads by 25%.

As a systems integrator, Logica acted for an EDI solution project for Radio Austria Communications. The EDI solution will enable Radio Austria to manage the transfer of electronic messages between a vast range of computer systems and applications.

Hüls, a large chemical company in Germany, is also piloting NonStop Messaging to link its 33,000 staff.

In a £3 million contract for the UK Ministry of Defence, Logica is leading a study to advise on the introduction of microwave landing systems (MLS) for military applications. Work includes the supply and installation of a fully operational MLS ground station together with complementary aircraft systems.

Logica supplied the satellite control centre for the first Turkish domestic satellite system, Turksat, as part of a ground control segment supplied by ALCATEL ESPACE of France. Facilities are located at two sites near Ankara, providing back-up support. The centre now controls Turksat-1B, which was launched on 10 August 1994, and is ready to support Turksat-1C, due for launch in 1996.

In December 1993, Logica conducted the strategic National Servers Pilot Project on behalf of the European Commission under the IDA programme (interchange of data between administrations). This initial phase linked the agriculture, statistics and customs departments of five Member States within the EC. Logica was the main contractor, project managing multiple subcontractors.

For the Dutch Ministry of Transport, Public Works and Water Management, Logica designed and built the MONICA system which caters for dynamic traffic flow information for the Dutch highway network. Information on traffic speed and density, from 600 current measurement loops increasing to 10,000 in the future, is transmitted at one-minute intervals via a national network to the Netherlands Transport Research Centre (AVV), where it provides the basis for real-time traffic management.

National Australia Bank was helped by Logica to set up a new dealing room system in Melbourne and the system has now been rolled out to its other major dealing rooms including Sydney, London and Wellington.

As part of its global account relationship with Reuters, Logica was asked to contribute advanced skills in human computer interaction to the analysis of how to design and build interfaces which are easy and intuitive to learn and operate and which also give the Reuters range of products a consistent brand image.

Using state-of-the-art speech recognition technology, Logica supplied a system to Telia, Sweden's telecommunications provider, which will partly automate the directory enquiries service. The system is expected to cut administrative costs and reduce the length of time taken to deal with enquiries by 15 seconds per call for each of the 60 million calls Telia receives every year.

For Ameritech, a US regional telecommunications company, Logica is developing the software infrastructure to enable the delivery of interactive multimedia, entertainment and information services to customers across the Midwest. Logica is currently providing consulting, software engineering and systems integration services to discrete efforts related to the Ameritech VIS programme. This work includes the high-level systems architecture of major system components, including the interface between what a television viewer sees and the system components which allow it to operate.

In May 1995, Logica won a systems integration contract to provide the national automated teller machine/point of sale (ATM/POS) switch for the United Arab Emirates (UAE) Central Bank. Twenty-seven banks in the UAE, including all the major domestic and foreign banks, have joined the scheme. The first bank will go live in late 1995.

near WIPS (Worldwide Information Processing System) project, 140 specialists from Ford and Logica are operating as a team based in three countries. The WIPS project forms part of a globalisation programme within Ford to prepare the organisation for its high-volume purchasing activities. Functional design was completed in Detroit USA; project programming in Basildon, UK; and computer operations in Cologne, Germany.

In September 1994, the Oslo Stock Exchange awarded Logica a contract to build its Next Generation Trading System (NGTS). The system is expected to offer greater trading efficiency by enabling off-floor trading. The contract is estimated to be worth approximately NOK 50 million (\$7.5 Million).

Logica have also been successful in winning contracts for Telecom Finland, leveraging their software solutions developed for a number of American clients, such as Ameritech and Sprint.

Logica have developed speech recognition systems which semi-automate directory enquiry functions and achieve operational efficiencies without, Logica claim, compromising customer service levels.

Logica have also written a new software interface for the Dutch PTT which has allowed the introduction of fully itemised billing for commercial and residential customers.

Exhibit 4 provides Logica's revenues analysed by industry sectors.

Exhibit 4

Logica Plc
Revenues by Industry Sectors, 1995
\$ millions

Industry Sector	Revenue in \$Millions	Share
Discrete Manufacturing	56	15%
Process Manufacturing	20	5%
Transport	35	9%
Utilities	38	10%
Telecommunications	38	10%
Banking & Finance	95	25%
Insurance	26	7%
Local Government	8	2%
National Government	55	14%
<i>Cross-industry Sector:</i>		
Systems Software Products	10	3%
Total Software & Services	390	100%

Source: INPUT Estimates

This Company Profile is issued as part of INPUT's European Business Integration programme. If you have any questions or comments on this profile call Ben Pring at INPUT, Cornwall House, 55-77 High Street, Slough, SL1 1DZ. Tel: 44(0) 1 753 530444.

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- o Market strategies and tactics
- o Product/service opportunities
- o Customer satisfaction levels
- o Competitive positioning
- o Acquisition targets

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- o Outsourcing options
- o Systems plans
- o Peer position

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Research Bulletin

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Targeting Repeatable Sales; Construction Industry Set for New Round of IT-Solutions Purchasing

One of the major business issues for professional services organisations has become replicability; the ability to leverage skills developed in one area into another, thus reducing ratios of R&D spending and maximising potential benefits from any one skill set or service offering.

The construction industry has, since the first computing exhibition for constructors was held in the UK in 1985, been seen as a relatively "low-tech" area. Although technologies such as computer-aided-design and automatic quantity billing have become widely used, the industry has failed to adopt technology in any comparable way to organisations in other vertical markets.

However, there are now signs that even though the construction industry is still struggling to emerge from the effects of the last recession, levels of IT spending are rising significantly, but more importantly, IT procurement executives are becoming focused on *utility* and *business value* and are increasingly drawn towards a services-led adoption of IT.

Opportunities exist for services-led IT vendors to leverage many of the technologies and approaches they have developed in fields as diverse as banking and finance or the military into the construction industry in this new period of IT investment.

In particular, Business Integration (BI) vendors can assist construction organisations:

- Utilise existing technologies in business processes requiring or undergoing re-engineering
- Understand the potential benefits of communications-intensive work practices
- Develop strategic approaches which aim at meeting organisation's and individual's changing requirements for working and living space.

Utilising Existing Technologies

The construction industry's own acknowledgement of its high tech shortcomings has recently been reflected in a report, *Constructing IT - Bridging the Gap*,

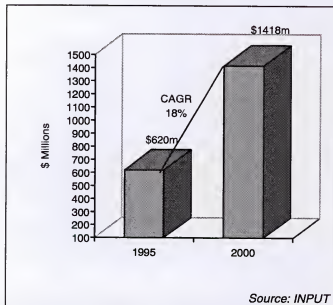
commissioned by the UK Government but widely subscribed to by the industry, which set out to examine ways in which technology was currently being used by construction companies, and ways in which it could potentially be used.

The report, produced by Andersen Consulting, recognised the steps constructors have made towards computer-aided-design (CAD), but was critical of the industry's failure to seize the benefits IT has brought to car production (JIT manufacturing) and the oil industry (remote diagnostics) amongst other industries.

Exhibit 1 provides INPUT's estimate of IT software and services spending in the European construction industry and a forecast of growth until 2000.

Exhibit 1

IT Software and Services in European Construction Industry



The market is estimated to have been worth \$620m in 1995, to grow at 18% CAGR over the next five years and be worth \$1418m by the end of the century.

The Andersen report has highlighted a number of ways in which the industry could move towards a wider and better implementation of IT.

Alongside the use of increasingly sophisticated workstation technology, which has brought a widening range of suitable applications construction companies building largely standardised offices or homes, have been attempting to gain efficiencies through eliminating the duplication of effort involved in re-keying materials requirements.

Teamwork, itself the subject of another major report in 1995 - *Constructing the Team* - can be facilitated through the use of central project databases integrating different critical applications and project management tools. Information can be captured once and interrogated from multiple points of view, thus reducing risk of error.

Cost models and performance data models can be used in the pre-project negotiation process to smooth the project sign-off process.

At the design stage, knowledge-based engineering techniques can be developed which allow designs to be assessed for cost, "buildability" and compliance with building regulations.

Site-management can be improved through E-mail, video-links, and wireless networks; and electronic ordering and bar-codes can be used to manage materials stocks and streamline supply chains amongst sub-contractors.

Another area in which technology is increasingly being utilised is in the development of "Intelligent Buildings", featuring integrated energy management and security sensors and digital control panels. Intelligent buildings offer the potential benefit of utilising previously invisible environmental user feed-back. The report proposes the

creation of an industry association, suitable to be mirrored in other European countries, aimed at driving home best practice messages.

Visual displays showing energy consumption and heating levels may allow designers and architects to conceive of building in more cost efficient ways.

Another technology of particular relevance is virtual reality. Using virtual reality displays, architects, engineers and clients can walk around a virtual model of a project. Techniques such as these are already being used in the oil industry where contractors can share details about a project and work around the office.

Another area in which the construction industry has been slow to recognise the potential of IT is in business development initiatives; however, once again constructors are now aware of the need to address the issue - itself the first step towards remedying the situation.

Representation on industry associations is recommended to BI vendors; many of the business practices widely adopted in the large systems integration industry are applicable to the construction industry as are many of the underlying technologies which have been thoroughly exploited in other vertical markets.

Comms-Centricity Offers New Possibilities

Construction, an industry where work is often spread over many dispersed sites, is attempting to benefit from the possibilities communications-intensive technology offer. Large international construction companies are looking to pool resources across offices and timezones. Design is non-country specific and projects can be shared between offices according to workload. Although many major construction players still work purely on

paper, including sending paper based blue-prints in tubes to remote offices, there is a common perception that these days are numbered.

International design and construction organisations are now "24-7" operations with files being passed between different offices according to the changes in the global working day.

Construction companies are, like many software development organisations, attempting to benefit from "off-shore" development in countries like the Philippines and India, where cheaper labour rates allow more cost effective management of routine task such as lay-out drawings.

Wireless communication is also facilitating improvements in on-site project management from remote offices.

One of the key developments in this area is Electronic Data Interchange (EDI). EDICON, is a subset of EDIFACT, which primarily aims at propagating the EDI message in the construction industry.

In April 1995, 20 construction firms established CITE, Construction Industry Trading Electronically, to provide a simplified EDI network. Companies involved in the network are achieve 20% of their invoicing electronically within the next two years, which would, given the huge volume of trading between contractors and their sub-contractors, produce significant savings.

The adoption of electronic trading and commerce has been held up by the failure to agree a set of standards. Working groups have been attempting to define these for some time; this appears to finally be happening.

These developments are based on an increasingly stable technology back-bone provided by the EDIFACT standard.

EDIFCAT is the United Nations standard which supports and is the backbone of world-wide EDI. It became an ANSI standard in early 1995 and was merged with the primary standard in the US, ASC X12.

The EC have a research and awareness programme called TEDIS (Trade Electronic Data Interchange Systems) promoting the use of EDI; they have been specifically targeting vertical markets such as the construction industry over the last year, and this initiative appears to have some impact.

The UK EDI Association (Edia) still concede however that "the rate of adoption is slow and disappointing".

There are signs that growth is picking up; the Article Number Association have recently stated that they expect numbers to rise by 80% over the next two years.

The concept of EDI is being part of the larger issue of Electronic Commerce, using E-Mail, and Groupware, and the Internet and WWW.

In the United States the growth of CALS (Continuous Acquisition Life-Cycle Support), a Department of Defence Initiative, is being seen as a lead indicator on the way to remove paper from large-project procurement and development processes.

The UK is still ahead of other European countries in terms of EDI adoption. Around 25,000 UK companies are using some form of EDI.

Another important standard supporting the growing adoption of these electronic trading approaches which will be so beneficial to the construction industry is TRADECOM, which

is the Article Number Association's standard for EDI first published in 1982.

This was used to establish the backbone of the first UK EDI network, INS-TRADENET, now run by GE Information Services.

INPUT forecast that \$50bn (1% of world-wide business to business commerce) will be conducted over the Internet by 1999. At present estimates suggest that business to business commerce equals \$30m which is 0.0006% of overall commerce.

EDI is primarily used for high-volume and repetitive transactions; the Internet will be used for non-repetitive purchases.

Teleworking Changes Working Space Requirements

During the last two years many large organisations have vacated considerable amounts of office space. Organisations such as BP, Deutsche Bank, Elf, and Siemens state that their property requirements will fall by 25% over the next five years. The impact on the Property and Construction industries will be marked.

Not only will fewer buildings be required but those that are, both new build and re-furbish, will have to be designed to cope with re-engineered business process and their underlying IT applications and infrastructure.

British Telecom have established a programme, Workstyle 2000, of developing buildings suited to these new work-practices. The first of these is a building which has full-time desk facilities for 1200 employees and 150 "hot-desks" catering for 3000 people. BT suggests that within three years new buildings will be based on a 60/40 split of hot-desks to more traditional approaches. Eventually the majority of buildings will offer the integrated systems which allow this

approach and all buildings will be able to be utilised in this way.

The growth of the Internet and the World Wide Web as a facilitator of virtual shopping and teleworking will radically alter people's requirements for living and working space and clearly construction companies will be faced with similar radical changes in the nature of demand in their business.

Organisations such as Wal-Mart in the US, the world's largest retailer, are now requiring that newly-built superstores should be convertible into housing within 6 weeks; Wal-Mart fear a rapid collapse in the requirement for shopping space and are future-proofing their organisation against over-capacity of expensive, but effectively redundant real-estate.

The growth of tele-working poses very real questions for construction organisations.

At an overall European level, 5% of office-based employees work at home 3-5 days a week, 5% work at home 1-2 days a week, and 10% work at home occasionally. 80% of people do not work at home at all and do not think they ever will.

However, the European Commission estimates that there could be 10 million teleworkers in Europe by 2000.

In the UK estimates again vary; some suggesting that there are currently 2.5 million teleworkers (10% of the working population), others only 1%.

It is estimated that in the US nine million Americans work from home. AT&T claim to have 47,000 telecommuters alone. 65% of Fortune 1000 companies have telecommuting programmes in place.

These rates will rapidly increase as technology penetrates the home market. Presently, estimates vary in terms of penetration of PC's into the home market; some market watchers suggest that around 50% of households in Germany have a PC, 7% a fax machine, and 21% a modem. In the UK this is compared with 52%, 20% and 10% respectively.

INPUT estimate that the home market accounts for 30% of PC sales in Germany; but there is a suggestion that high sales levels are currently being driven by replacement and second-machine purchases rather than through further market penetration.

The other area of high growth has been in "satellite" offices on out-of-town industrial estates, where locals can rent space and work on their companies behalf away from the head office. DEC have been active in encouraging significant numbers of their staff into this type of arrangement.

As recently noted in the Economist, "the demise of distance as the key to the cost of communication may well prove the most significant economic force shaping the next century".

Within a decade telephone calls will be billed on a flat rate rather than on length of conversation and distance of location of the call will be irrelevant.

This change in pricing will be magnified by two other changes;

- the huge increase in the capacity and portability of the phone
- the wiring of the rest of the world.

The impact of these trends on working patterns, the requirement of office and home

working space and thus the building requirement may be enormous.

As technology reduces the cost of entry into the telecommunication services market, and as national governments create single markets for telecomms (in the US the telecommunications bill has been passed which will allow free competition between long distance carriers, RBOCs and cable TV companies) new patterns of working, facilitated by this technological liberalisation will unleash new patterns of demand.

Advances in cabling techniques will facilitate new approaches to building design and will

require less under-floor space thus requiring less overall height or higher staff ratios.

BT argue that average floor space per worker can be reduced from 200 ft sq. to 110 ft sq. and ultimately to 65 ft sq.

Similar reductions have already been achieved by IBM who in their UK offices have through teleworking reduced their space requirements from 230 ft sq. per worker to 180 sq. ft and correspondingly have saved £12m per annum over the last two years.

Business Integration vendors are well placed to help organisations understand and exploit the sum of these technological developments.

This Research Bulletin is issued as part of INPUT's European Business Integration Programme. If you have any questions or comments on this bulletin, call Ben Pring at INPUT Cornwall House, 55-77 High Street, Slough, Berkshire SL1 1DZ +44 (0) 1753 530444.

Research Bulletin

A Publication from INPUT's Business Integration Programme - Europe

Vol. VII, No. 3

1996

Convergence Drives Industry Reconfiguration

Although, almost inevitably, there has been something of a backlash against the concept of *convergence* over recent months, *convergence's* underlying technological foundation is indubitable, is finally becoming a reality, is increasingly influencing the individual development of both areas, and is making it no longer feasible to think about IT and communication technologies in isolation.

The commercial ramifications of these technological developments are driving a period of creating, what, even in late 1994, would have appeared a number of unusual new alliances and interest blocks.

Organisations from many different backgrounds and heritages in computing and communication industries are engaged in a process of frenzied merger, acquisition and alliance activity that is currently altering the shape of the large project service market; new and different value chains are emerging through the convergence of different companies, markets, and sectors. Service vendors, aware of the implications of these developments on their access to both traditional and new marketplaces, are attempting to ensure that fundamental shifts

in the nature of demand do not leave their services offering isolated in legacy markets.

The very nature of this profound period of change, offers enormous challenges as well as opportunity. The IT industry is littered with examples of failed collaborations, alliances, and partnerships; it is clear that in the current flux many organisations will make either poor strategic decisions, or execute these potentially correct decisions badly. Of course, some may do both.

Vendors of Business Integration services, engaged in alliances, M&A's, or partnerships face the requirement to rigorously examine both the strategic and operational implications of undertaking major business alliances, and in particular:

- Explicitly agree an understanding of a common set of *business*-related objectives
- Examine, at the earliest stages of the deal, potential reasons for the failure of the relationship, and identify appropriate and mutually acceptable exit strategies
- Be cogniscent of the primary of organisational "cultural fit".

Agreeing Common *Business-Objectives*

INPUT have recently interviewed a number of leading IT services organisations involved in major alliances and M&A activity.

As shown in Exhibit 1, two categories of advice stand out in the feedback from the firms interviewed in terms of making alliances or any form of strategic business relationship work.

Exhibit 1

Vendor's Most Common Advice

- Alliances succeed only if there are shared corporate commitments, objectives and goals, and understandings — Advice offered by 86% of the firms interviewed
- Nurturing of both communications and the working relationship is key to alliance success — Advice offered by 41% of the firms interviewed

Source: INPUT

The most common advice is to ensure that corporate commitments are shared between the alliance partners, keep objectives and goals in alignment, and ensure that the partners' understanding of the terms of the alliance are not in conflict.

The second most common category of advice focuses on the need for nurturing communications—person-to-person and organisational—and the alliance's working relationships, to encourage a high degree of alliance success.

Firms entering an alliance are urged to be sure that the partners' understanding of

objectives and benefits is clear to both parties. This includes the specific advice to be sure that both the partner's objectives and the firm's own objectives are understood clearly. Also, be sure these are communicated accurately. In addition, look for mutual benefits within those objectives. One form of mutual benefit is profit sharing: 41% of the firms interviewed report that profit sharing is a partnership objective with which they have experience.

Roles and responsibilities of each partner must be agreed upon prior to the start of the alliance. Who will undertake what roles — separately or jointly? Which responsibilities will be shared, and which will be assigned to only one of the partners?

To help clarify these roles and responsibilities, it is recommended that shared measurements be clearly agreed to, and that each partner understand what metrics are used internally by the other to judge performance.

One specific understanding that is critical to the success of the partnership is just what resources and investments are being committed to the alliance by each party; a mentality of "investing in the alliance" on both sides will help to ensure success of the partnership. Without this either side may at any stage become suspicious of the commitment of the other.

Corporate commitment includes both financial commitments made by each side as well as being sure that the alliance fits each firm's long-term corporate strategy. Both corporate and executive commitments should be at matched levels from the outset.

In order to best implement this advice about commitment issues, INPUT recommends that as many of these as possible be dealt with before the partnership agreement is finalised.

Explicitly state both shared and separate corporate objectives, and benefits expected, for mutual sign-off as part of the agreement.

The other, closely related category of advice cited here is the need to nurture communications among all individuals in the partnership in order to continually strengthen the working relationship.

What this means above all is consciously caring for the "health" of the working relationship. Interviewees in this report said repeatedly that the key to generating this health is effective communication.

Regarding these communication issues, INPUT recommends that a firm's care for the alliance's working relationship should start even before the agreement is signed.

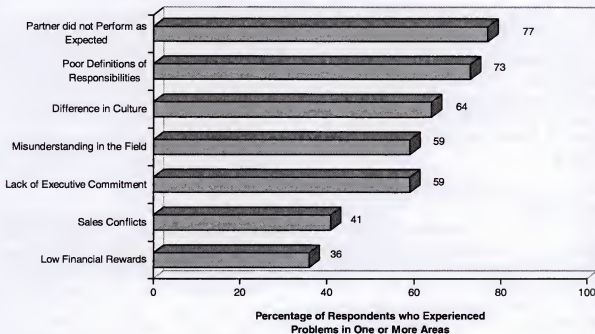
Successful alliances look for opportunities to bring in other individuals or points of connection and communication to improve the effectiveness of the working relationship. Look carefully to see if trust and win/win deals are the prevailing tone of the relationship, and implement corrective actions if they are not.

Understanding Reasons for Failures

Firms surveyed replied to questions on the most serious problems they have encountered with strategic alliances, providing the overall ranking of problems shown in Exhibit -2.

Exhibit 2

Reported Problems With Alliances



22 Respondents

Source: INPUT

Two problems stand out at the top of the list:

- Failure to perform as expected during the course of the alliance
- Responsibilities that were not clearly defined.

It comes as little surprise that there is a strong correlation between these two factors. Note that in three-quarters of the instances where a firm reports problems with a partner not performing up to expectations, it also mentions problems with poor definition of responsibilities.

This fits directly, of course, with earlier-reported feedback about setting and communicating clear roles and responsibilities.

Clustered together as moderately important are three other problem factors. First among these is a difference in cultures between the partnering firms. It is interesting to note that two-thirds of those reporting culture differences also report international alliance experience, which may have been a contributing factor; on the other hand, some with international experience report no culture-clash problem, and some without international alliances still report culture problems, presumably of the "corporate culture" type.

Second in this group of moderate problems are situations of field-based misunderstandings within the alliance. These are mainly due to lack of, or poor, communications regarding the implementation aspects of the alliance. Third are problems that stem from lack of executive commitment, which once again is a key point of advice cited earlier in this report.

Significantly lower among alliance problems reported are sales conflicts between the partners and financial rewards that fall below

expectations. This indicates that most firms are realistic with regard to their expectations of financial rewards from alliances, and they are effectively managing the sales activities related to their alliances.

Cultural Fit is of Key Importance

Vendors actively involved alliances or M&A activity in this current period of significant change in the IT and communications industry, hoping to benefit from "value-chain mutation" by staking out new, potentially explosive market opportunities, face major challenges in making these collaborations work.

Integrating disparate IT systems following in the wake in M&A activity is clearly one of the key offerings Business Integration (BI) vendors offer to their client organisations. In making BI-related alliances, acquisitions and partnerships successful vendors are faced with the challenge of applying these skill sets to their own internal organisations.

How to merge IT systems is often one of the major issues for executive management boards pushing through a merger or acquisition. BI vendor's independent and external skills are often key in undertaking this type of project. One of the key problems for BI vendors in making this happen for their external organisations is the lack of this external, impartial role.

There are a number of high profile examples of mergers being scrapped through a failure to agree on which technology should be kept, which abandoned and what are the best environments for future development.

There is a body of academic research which argues that technology is becoming one of the key stumbling blocks in the transition organisations face in the process of acquisition, merger, or alliance. IT is evolving

to occupy a central role in the integration of business operations.

BI vendors face serious challenges in attempting to manage this potential problem without the use of external consultancy or services-led IT assistance.

Perhaps the most important challenge vendors face though, is the one of integrating the diverse cultures organisations with different backgrounds invariably have.

Change in any sphere, be it operational or strategic, is a long-term exercise which brings dislocation, pain and self-doubt. Changing *culture* or attempting to forge a completely new culture increases these experiences by a factor of ten.

Many of the large management consultancies have themselves undergone much of the pain of cultural change, driven by the pre-recessionary drive for market share, which led to the merger that formed KPMG Peat Marwick, and the mega merger between Coopers & Lybrand and Deloitte Haskins & Sells. KPMG's experience and that at the now renamed Coopers & Lybrand (after a brief time as Coopers & Lybrand Deloitte) shows that there are many casualties of often bitter and intense restructuring attempts to derive a new culture from two existing ones.

Whether the recent moves made by EDS, Unisys, MCI, Microsoft, AT&T are successful remains to be seen. EDS will for some time be a melting pot of management consultancy cultures. Either a hybrid EDS culture, distinct, robust, and marketable, will emerge or the differences will lead to a difficult period of internal struggle in which focus on the marketplace will be undermined and the very advantages of the exercise will be lost.

However, success in this period will offer BI vendors a clear differentiation opportunity in the marketplace.

Technical based BI vendors, with enhanced and revamped business consulting skills, especially in the *soft* areas of change management will be well positioned to help their clients introduce and manage new emerging technologies and management approaches.

The market proposition of business enabling technology will be a powerful message in the increasingly business conscious environment, but an environment that is still technology driven.

The other key gain vendors will achieve is the ability to leverage, from reference through to delivery, their own experience of undergoing and benefiting from change.

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- o Customer satisfaction levels
- o Competitive positioning
- o Acquisition targets

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Research Bulletin

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1996

MCI Communications - Driving into Integrated Services

Inevitably, there has been something of backlash against the concept of *Convergence* over recent months. AT&T's recent "demerger" has been interpreted by some commentators as evidence that *Convergence* is essentially operationally untenable, and that it supports the demise of the "smaller share of larger markets" argument.

However, *Convergence's* underlying technological foundation is still indubitable, and more sober reflection suggests that AT&T's actions were driven more by the need to face the implications of a particular failed acquisition rather than to re-correct the underlying strategy.

The convergence of information technology and communications, long heralded, is finally becoming a reality, is increasingly influencing the individual development of both areas, and is making it no longer feasible to think about IT and communication technologies in isolation.

The commercial ramifications of these technological developments are creating, what, even six months ago, would have appeared a number of unusual alliances.

One of the most interesting of these new relationships, and the focus of this profile, is the recent acquisition of the systems integrator, SHL Systemhouse, by the second largest US long-distance telecommunications carrier, MCI Communications.

MCI, with the avowed intent of challenging AT&T and BT in the fight to become the world's premier information services player, has entered a period of aggressive expansion based on both organic and acquisition led growth.

This profile examines:

- MCI's recent moves to extend their service offerings
- The impact and implications of the SHL Systemhouse take-over
- Changing competitive conditions in the European telecommunications market from which MCI hopes to benefit.

MCI Strives to Extend Service Offerings

MCI with revenues of \$13 billion in 1994 are the second largest long-distance carrier in the USA.

However, CEO Bert Roberts Jr, has recently stated that his objective is to transform MCI into a diversified communications conglomerate, and that MCI's corporate objective is "to get to the future before AT&T".

Roberts believes that MCI can no longer thrive in one area of activity. He estimates that by 2000 half of MCI's revenue will come from products/activities that MCI does not currently offer.

MCI is trying to push a trend towards competing on its "integrated service offerings" rather than on price, aiming to win the loyalty of large multinational customers who are looking to rationalise their complete communications procurement requirements.

Integrated packages MCI offer include customer service call-centres, helping corporations install advanced computer and telephone networks and processing credit card transactions for banks and retailers.

MCI is also counting on integrated services to dominate the global market. Already the fastest growing international carrier for basic voice service, MCI is adding 50% more traffic every year. Concert, its joint venture with BT, is a private network that serves companies with worldwide offices and provides a number of ways for companies to exchange data internally. Most conveniently of all, Concert puts voice and data traffic onto a single bill offering companies the ability to deal with a single customer-services organisation.

To further this end, MCI has over the last year been building a series of alliances which

attempt to take the organisation outside of traditional areas of operation.

Primary amongst these have been the offering of 20% of stock to BT for \$4.3 billion, and, most controversially, the \$2 billion investment in Rupert Murdoch's News Corporation. The development of the relationship between BT and MCI hints at an increasing co-operative role between BT's system integration arm, Syntegra, and SHL. MCI have also announced a deal with Microsoft whereby MCI will market Microsoft products, including a customised version of MSN, and provide a new delivery channel for software upgrades. Oracle are also planning to become an active partner in this new, and potentially extremely powerful, trading block. Exhibit 1 provides a schematic of these relationships.

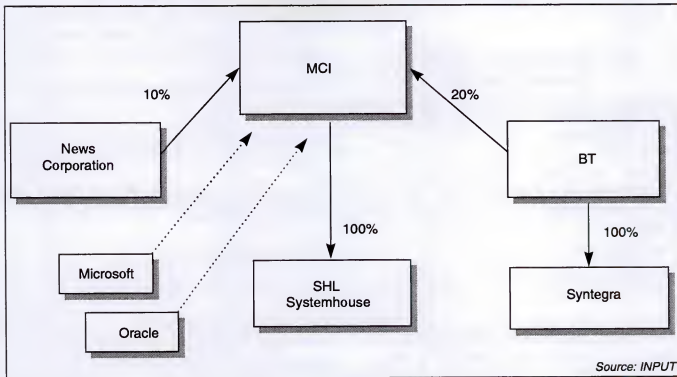
MCI have been extremely active in enhancing service offerings through joint ventures in Mexico and Canada, new businesses in consulting, software, Internet access, paging and cellular communications, and the construction of alternative local telephone networks in 14 US cities.

In August 1994, MCI restructured putting traditional long-distance services into a new division, MCI Telecommunications, which will focus on selling high-margin packages of telephony and consulting services. New businesses and global joint ventures have been placed into another division, MCI Ventures & Alliances.

More recently, MCI has made repeated efforts to enter the fast-growing market for cellular and wireless services, including the acquisition of Nationwide Cellular, the largest US reseller of cellular services for \$190 million.

Exhibit 1

MCI – BT News Corporation Equity Relationship



Since May 1995, MCI has also contracted to resell services from five other cellular providers, including AT&T, which means the company can now offer service to 75% of the US population.

By not investing in a wireless infrastructure MCI has been able to offer significantly lower cost services.

MCImetro is MCI's local service division that has installed fiber optic networks in 14 cities, hooking businesses directly into MCI's long-distance network.

\$1 Billion Strategic Acquisition of SHL Systemhouse

Furthering a strategy aimed at integrating computing and communications offerings, and,

by coincidence, on the same day as the AT&T demerger announcement, MCI announced its offer to buy the increasingly high profile Canadian systems integration and outsourcing vendor, SHL Systemhouse.

The deal, worth \$1 billion in cash, will leave SHL as a stand-alone operating company within MCI.

SHL Systemhouse has been instrumental in driving the message of transformational systems development, either through outsourcing or project contracting, over the last two years.

Recognising the need to help organisations migrate from legacy platforms to predominately client/server environments, SHL have ridden a wave of marketplace

demand which has seen them achieve world-wide revenues of \$850m, \$100m (12%) of which comes from its 700-strong European operation. Exhibit 2 details SHL's European revenues by delivery mode.

Exhibit 2

SHL Systemhouse Analysis of European Revenues

Delivery Mode	(\$m)
Mainframe Systems Management	8
PC & Desktop Systems Development	50
Client/Server Software Development	10
Consultancy (BPR)	17
Training & Education	15

Source: INPUT

SHL, unlike competitors from equipment of personnel with legacy platform skills. It's technology skills set is exclusively centred on

new systems, backgrounds does not have legacy baggage in terms.

SHL has broad experience in client/server consulting and development and has developed a methodology, *SHL Transform*, which it is offering as a stand-alone product as well as utilising within its own client projects.

Transform is an object-oriented software tool containing:

- Routemaps of best practice development methodologies
- Project management, process mapping and workflow modules
- Training modules
- Overview of relevant metrics

Exhibit 3 provides a competitive analysis of SHL's client/server capabilities against a number of other leading vendors.

Exhibit 3

Client/Server Systems Management Capability

Scope of geographic coverage	Global	HP	
		EDS	AT&T
		Olivetti	IBM
		MCI/SHL	
National		CGS	
		Sema	
		National PTTs	
		Computacenter	
		LAN or WAN	LAN and WAN
Scope of client/server management offering			

Source: INPUT

SHL's European, non-outsourcing based, client references include organisations such as the world's leading marketing communications group WPP, the cellular phone unit of Cable & Wireless, Mercury, KLM, and the computer games manufacturer, SEGA.

Another prominent organisation which has used *Transform* includes, the now ING owned investment bank, Baring Asset Management. SHL has assisted Barings in designing and implementing client/server architectures utilising Hewlett-Packard servers and with the development of new applications to run on this infrastructure.

Telecommunications; A High Growth SI Opportunity

The telecommunications sector has replaced the financial services sector as the most dynamic area for the adoption of new technologies and has led some to dub it the "New City"; the "City" of London being the last area to witness such high growth rates of IT related investment.

Exhibit 5 provides a forecast of SI related growth in the European telecommunications market until 2000.

However, this explosive growth is not unsurprisingly attracting growing numbers of vendors into the European telecommunications marketplace.

These include traditional, existing European SI players who are attempting to manoeuvre their services offerings away from low-growth or stagnating vertical markets, as well as players new to the European market or new to the IT services industry altogether. MCI fall into this latter camp.

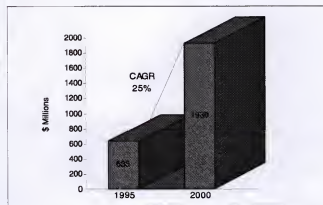
AT&T have recently announced their intention of competing head to head with BT in the UK market including in the residential services, and aim to generate revenues of \$1 Billion in the UK by the end of the century.

Heightened levels of competition in a market which is undergoing, and will continue to undergo for some time, fundamental structural transformation will present major challenges for all interested parties.

Roberts sees MCI's primary strength as an aggressive marketing orientation; a strength they will need as they face threats in their primary market posed by the US Telecommunications Deregulation bill, which would allow the seven regional Bell operating companies to compete with MCI, by offering long-distance services, slimming MCI's already narrow margins.

Exhibit 5

Systems Integration Services Growth in the Telecommunications Sector, Europe 1995-2000



Source: INPUT

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- Product/service opportunities
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- Competitive positioning
- Acquisition targets

For Buyers—evaluate:

- Specific vendor capabilities
- Outsourcing options
- Systems plans
- Peer position

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Telecommunications Liberalisation Unleashes Chaos and Confusion

With the count-down towards the full liberalisation of telecommunication services in 1998, the European telecommunications marketplace has become one of the most dynamic areas for Business Integration (BI) vendors, keen to target high growth market opportunities.

However, the differing pace of liberalisation across individual country markets and thus new service provision, is creating an extremely fragmented marketplace in which telecommunications organisation's requirements of BI vendors are unfolding at an uneven pace.

The challenge for Business Integration wishing to benefit from the undoubted opportunities this marketplace is creating is to identify the different approaches and service requirements required by different types of telecommunications providers and approach these organisations with appropriate offerings. What is appropriate to a large, pan-national *defensive* PTTs is inappropriate to the new breed of *aggressive* alternative telecommunications providers.

This bulletin discusses these issues and provides more details of:

- The growth of Business Integration services in the European telecommunications market
- Differing IT systems and applications being developed
- The challenges of complex network integration which play to the strengths of Business Integrators.

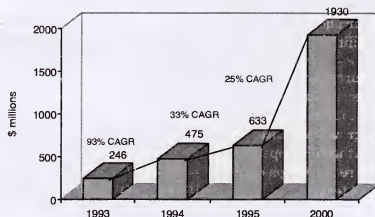
Business Integration Services Will Grow at 19% CAGR Until 2000

Exhibit 1 provides details of the growth of the Systems Integration (SI) marketplace within the European telecommunications industry in the period 1993 to 2000 and contrasts these heady growth rates with those of the overall SI marketplace, shown in Exhibit 2.

National telecommunication organisations who have been used to a sheltered life under the protective wings of governments, acting in effect as monopolies, are now rallying to position themselves against companies they would never before have considered competitors in a competitive environment awash with alliances, ground-breaking technology, and fierce competition.

Exhibit 1

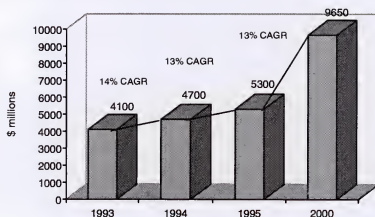
Systems Integration Services Growth in the Telecommunications Sector, Europe 1993–2000



Source: INPUT

Exhibit 2

European Systems Integration Market 1993–2000



Source: INPUT

Most noticeable in the UK telecommunications market, which is ahead of the rest of Europe. In terms of deregulation, competitors are not only other telecommunications companies expanding their geographical reach but also cable-TV companies, cellular phone companies and new players such as utilities.

Across the nations of the European Union there is a wide range of telecommunications service provision. For most countries in north-west Europe there is little growth in voice telephony, though some southern European countries, such as Greece, are thriving as they strive to catch up in relative terms.

This stagnant situation in basic voice provision has led the major PTT's such as British Telecommunications to embark on extensive above and below the line advertising campaigns, run almost continuously, to attempt to encourage people to spend more time on the telephone.

By comparison the market for mobile telephony is expanding extremely quickly. This is true both of GSM (Groupe Speciale Mobile) and Personal Communication Network (PCN) based offerings.

The pace at which the underlying technical infrastructure develops across the different country markets however is proving to be largely consistent. Though there are local differences such as the growth of ISDN in Germany, contrasted with switched packet stream networks in France, and leased line strategies in the UK, the degree of per capita telecommunications related investment is on a par between the major country markets within Europe.

Differing IT Systems and Applications Being Developed – Telco IT Systems Have High Degree of Obsolescence

The next five years are crucial to the development of the telecommunications industry both in terms of adoption of new services and in the pace at which these new services are built and rolled out into the marketplace.

By 2000 the European telecommunications industry will be virtually unrecognisable with the structure of the industry having changing fundamentally.

Competitive conditions akin to those which have reshaped the computer industry (falling cost, new entrants, rapidly changing technologies etc.) are fast impacting in the telecommunications industry.

Rather than there being a relatively easily identifiable number of national champions it will be less easy to group service providers according to regulatory models (e.g., PTT, privatised national carrier), transport type (e.g., wireless, wireline), or geography.

Instead, the industry will be made up of many types of players of all sizes, dealing in various markets. Already there is emerging a multi-tiered market (global, national, regional, value-added resellers, etc.), which is the future shape of the industry. This will be a shape which will support many different operational approaches and most importantly for IT service providers require a variety of different approaches to IT delivery and support.

Telecommunication organisations can broadly be divided into two categories; a few, extremely large organisations (the survivors) and the remainder which must search for international partners, together with some niche operators (mainly start ups).

Only a few organisations can hope to survive as a significant or even dominant partner in a group. For the rest, for PTT's in both Central and Eastern Europe, even in Western Europe, the best they can hope for is a continuing role in the delivery of services for an international group, in which they are the minor partner, operating as some sort of local representative office.

For European PTT's the future, it appears, is bleak. Automation and globalisation will unceasingly require cuts in their workforces as they increasingly face competition from big international players such as AT&T, MCI and Sprint. One response to these threats has been to form joint ventures with these new players such as the link ups between Deutsche

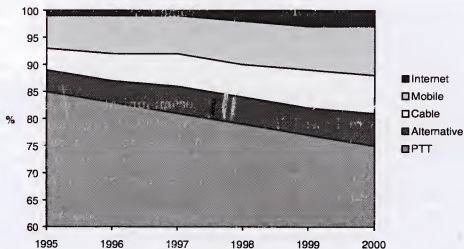
Telekom, France Telecom and Sprint and BT's relationship with MCI.

Faced with economies of scale and the scope of these large global companies and the development of global brand names, most notably AT&T, it is difficult to see a future for the smaller PTT's other than as integrated units within a global telecommunications operator.

Exhibit 3 analyses the rate at which new types of telecommunication service will penetrate the European marketplace whilst Exhibit 4 presents a forecast of Business Integration revenue growth related to the five major types of telecommunication service over the course of the next five years.

Exhibit 3

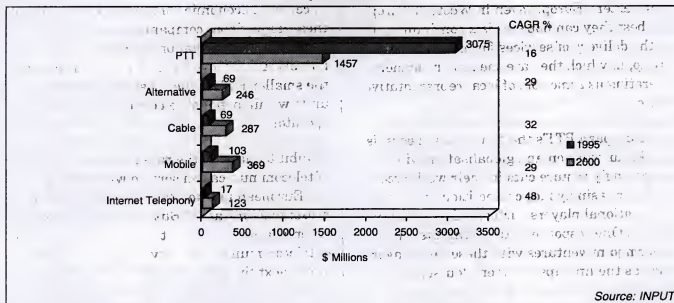
Telecommunications Penetration Rates, Europe 1995–2000



Source: INPUT

Exhibit 4.

Business Integration. Revenues by Telecommunications Type, Europe 1995-2000



In this rapidly changing new environment the priority for both established and emerging telecommunications providers is to build networks quickly and efficiently, not least because of the time pressures they are under from franchise awarding bodies. Telecommunications providers who do not demonstrate that they can start to offer promised services within a reasonable timeframe are under the very real possibility that their franchise will not be renewed.

Once networks have reached an adequate level, a process that can take up to three years, the emphasis within the telecommunication provider switches to upgrading the systems to enable the provision of more and better services. Telecommunication organisations tend to concentrate on a "first thing first" basis, focusing on voice and data provision currently, whilst recognising the potential for higher risk applications such as video-on-demand (VOD), further downstream.

Telecommunications companies expect to constantly introduce new services over the coming years as network infrastructures become richer, and resultingly have aggressive plans to develop new software and extend existing software.

The majority of IT related investment within telecommunications organisations has been in Network Management Systems (NMS) and Subscriber Management Systems (SMS). Functions within Subscriber Management Systems typically include:

- sales order processing
- credit checking
- database maintenance
- billing
- query handling.

It is generally recognised however, that a second, and in some cases a third, generation of these systems will be required within the next two years. These second and third generation systems will need considerable extension in terms of functionality over previous generations.

Most non-PTT telecommunication organisations are currently engaged in re-developing their SMS, having reached the conclusion that their existing systems which could hardly be considered legacy systems, are already inadequate.

SMSs are typically designed around a single database and a single platform with little support for modular extension or expansion. This integrated approach has been seen to be cost-effective and relative simple.

However, in the more mature PTTs, there is a considerable amount of complexity, of

legacy systems, different platforms, and unintegrated applications.

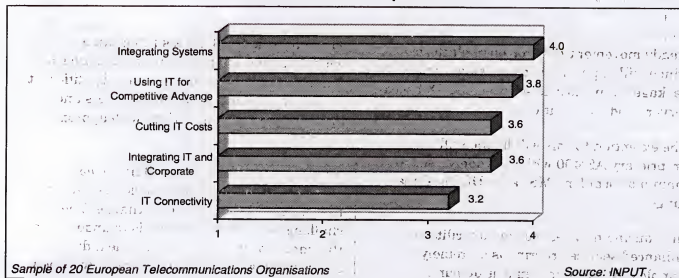
Exhibit 5 shows that integrating systems is still the main focus of telecommunication providers' current IT operations.

Service order complexity is continuing to grow as new applications are introduced. At the point of deregulation order and customer information systems are typically old and inadequate; some of the less mature national PTTs still manage with manual based systems. Deregulation forces an immediate and urgent need to revise and upgrade these systems.

One feature of Service order complexity is flexible billing. Statements that provide a summary followed by a listing of detailed calls are fast becoming the norm across the major country markets of Europe.

Exhibit 5

Focus of Current IT Operations



These new applications are in some cases having to be built from scratch rather than as modular extensions on top of existing systems. This is clearly expensive, time consuming and inefficient. One of the reasons for this situation is that underlying infrastructures are not sufficiently scalable and robust to support such extensions.

To counter this, new systems are now being developed around the Telecommunications Management Network (TMN). The lower elements of TMN are "network facing" but need to communicate with the higher elements which are "customer facing" such as service management functions including order taking, provisioning, billing and customer query handling.

Service management systems link into the top end of the TMN, the Business Management layer, which contains all the management information enabling executives to interrogate subscriber populations, usage rates and the costs of providing the service.

Over the next five years there will be an industry wide migration to new technologies and standards such as TMN. There will be a steady movement towards open platforms which will support a wide range of variety of packaged applications software, UNIX based servers and workstations.

The exception to this will be the still proprietary AS/400 which is widely used as a main platform for SMSs as is DEC's Alpha range.

Introducing new technology to facilitate enhanced service ordering is extremely complex. At the same time as demand increases technology continues to change rapidly.

Major investments in a specific application can be outdated very quickly. Some

applications can be outdated even before the development is complete.

Of course this situation, if handled correctly by BI vendors, will continue to provide great opportunity over the next three to five years.

Complex Network Integration Challenges Play to the Strengths of Business Integrators

As the 1994 Bangemann report (the series of recommendations made to the European Commission which acted as the catalyst behind the current phase of deregulation) pointed out, "all revolutions generate uncertainty, discontinuity and opportunity. Today's is no exception. How we respond, how we turn current opportunities into real benefits, will depend on how quickly we can enter the European Information Society. In the face of quite remarkable technological developments and economic opportunities, all the leading global industrial players are reassessing their strategies and their options."

These conditions of course spell incredible opportunity for Business Integration vendors.

The challenge for Business Integration vendors is to identify the different approaches and service requirements required by different types of telecommunications providers and approach these organisations with appropriate offering.

Succeeding in this period will not be easy however, as the industry transforms itself and the characteristics of success change. The challenge for service vendors is to understand the impact of these changes on the industry and learn how to play the new game with new rules.

Huge rewards will be available to those service providers who can flourish amidst the chaos and confusion that the European

marketplace will present over the next five years as it reshapes itself.

A key aim behind the Bangemann report is "standardisation ... essential to achieve network connection and interoperability of services at an international level. Interconnection of networks and interoperability of services and applications (will) become increasingly important as competition is introduced, if fragmentation is to be avoided."

The report states that "the challenge is to provide interconnections for a variety of networking connections (e.g. fixed and new types of networks, such as mobile and satellite) and basic services such as ISDN."

These aims, of course, play straight into the hands of systems integrators and professional

services firms, whose background is in large scale integration projects, and projects which have for some time had a growing component of networking involved.

One of the main drivers behind the success of the telecommunication industry over the next five years will be the efficient integration of fixed and mobile networks.

The complexity of building the networks that are required for the provision of new telecommunications services coupled with technology's shorter product life cycles, and hence greater risk of failure in systems development, will lead to increasing calls on the skills which are the prime offering of the Business Integration (BI) community.

This Research Bulletin is issued as part of INPUT's European Business Integration Programme. If you have any questions or comments on this bulletin, call Ben Pring at INPUT Cornwall House, 56-77 High Street, Slough, Berkshire SL1 1BZ +44 (0) 1753 530444.